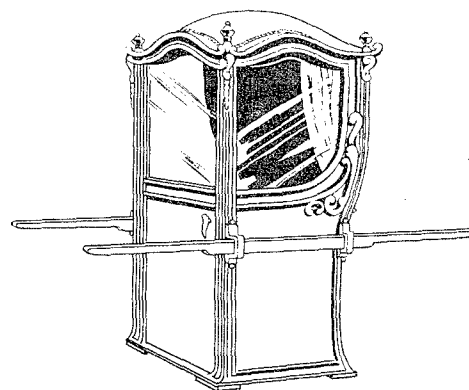


Plowshare / peaceful uses for nuclear explosives

UNITED STATES ATOMIC ENERGY COMMISSION / PLOWSHARE PROGRAM

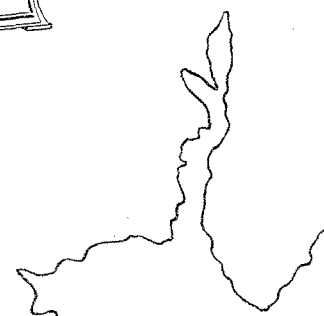
project SEDAN

NEVADA TEST SITE / JULY 6, 1962



NEVADA
CALIFORNIA

Las Vegas •



On-Site Radiological Safety Report

REYNOLDS ELECTRICAL AND ENGINEERING CO., INC.

ISSUED: APRIL 29, 1963

20050810 288

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THE SEDAN EVENT

On-Site Radiological Safety Report

Prepared by members of the Radiological
Safety Division, Health Medicine, and
Safety Department.

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Reynolds Electrical & Engineering Co., Inc.

Mercury, Nevada
October 23, 1962

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I. Introduction

The Sedan Experiment, part of the Atomic Energy Commission's Plowshare Program to develop peaceful uses for nuclear explosives, consisted of detonating a thermonuclear device of about 100 kiloton yield 635 feet underground in the alluvial flats at the northern part of the Nevada Test Site. The device was a relatively clean thermonuclear device in which fission contributed less than 30 per cent of the total yield. It was emplaced in a 36 inch diameter cased hole that was backfilled with sand. Detonation occurred at 10 a.m. pacific daylight time on July 6, 1962.

Some of the smaller earth particles formed a dust cloud which rose to a height of about 12,000 feet above the desert floor, somewhat higher than expected.

The detonation formed a crater measuring about 1,200 feet across and 320 feet deep. About 7.5 million cubic yards of earth and rock were removed. The lip of the crater varied in height from about 20 to almost 100 feet. The predicted crater diameter was 1,200 to 1,400 feet and the depth from about 170 to 300 feet.

As expected, most of the radioactivity produced by the explosion was trapped underground. A precise determination of the percentage of escaping radioactivity cannot be obtained from the available preliminary data, but this data shows that there was no major deviation from the prediction that about 95 per cent of the radioactivity would be trapped in the ground.

The cloud, carrying dust and the small fraction of radioactivity which was not trapped underground or deposited close to the crater, drifted north at a speed of about 12 miles per hour. The heavier fallout was confined to within about two miles upwind and crosswind, and four miles downwind of ground zero, in line with predictions.

II. Summary

The on-site radiological support program for Project Sedan was established to assist in exclusion area control, to minimize the radiation exposure of participating personnel and observers, and to prevent the spread of radioactive contamination. The support program included all phases of radiation safety.

Initial radiological data was obtained by hard-wire telemetry readout at the CP-2 Rad-Safe facility. At H+1 hours, when dust conditions subsided to a point of acceptable visibility, the initial survey began. Party monitors entered the area and reported dose rates at pre-selected locations.

These measurements were obtained using hand carried instruments. Measurements indicated that significant radioactive fallout from the nuclear explosion was deposited in an oval pattern around ground zero and contained within the boundaries of the Test Site.

At H+2 hours, a complete definition of the area of significant fallout was easily discernible. The 1,000 and 10,000 mr/hr contours assumed a distinct oval shape. The diameter of the 1,000 mr/hr isodose rate contour was approximately 4.5 miles, and the diameter of the 10,000 isodose rate contour was approximately 2.25 miles.

Traffic to an adjacent area was diverted until a main access road across the east side of the pattern was decontaminated to acceptable limits.

Radiation area control was effected by utilizing a Rad-Safe check station positioned on the principle access road into the Test Area. Radiation Monitoring personnel were available at this facility for party monitoring and Area surveillance.

Radiation warning signs and barricades were appropriately positioned on all access roads into the area.

III. Discussion

(A) Preliminary Test Preparation

- 1.1 Radiation measurement and sampling equipment was set out prior to the test. Fallout trays, film badges, and remote read out instruments were placed in pre-designated positions. Personnel, procedures, and initial survey routes were pre-assigned.
- 1.2 Data logging, collection, and evaluation stations were established at CP-1, CP-2, and the Test Directors Forward Control Point. A complete system of the reference stakes was placed out and mapped on all the test area roads. These stakes were used during the surveys to refer readings taken in the field to corresponding maps at the control points.
- 1.3 REECo Rad-Safe Base Operations Stations were established at the Test Directors Forward Control Point and at Indian Springs Air Force Base prior to the detonation. They were equipped and standing by to:
 - a. Perform radiological surveys and provide emergency support.
 - b. Provide and issue anti-contamination clothing and equipment.
 - c. Issue portable instruments and dosimetric devices.
 - d. Operate area control check stations.
 - e. Perform personnel, equipment, and vehicle de-contamination.
- 1.4 Monitoring personnel were provided off-site to support the United States Public Health Service, LASL Sample Recovery and UCLA Scientific experiments.

(B) Post Detonation Activities

B-1 Telemetry Data

- 1.1 Seventeen remote monitoring stations were in continuous operation in the test area. These stations consisted of thirteen 500 R/hr maximum reading and four 10,000 R/hr maximum reading units in CP-2 connected to ion chambers at various positions around ground zero. (For positions see Fig. #1 - Section IV). From H+3 min. to H+4 hrs. readings were continuously collected and recorded. (See Table I Section IV.) Later readings were taken and recorded periodically through July 10, 1962.

B-2 Post Shot Surveys

- 2.1 At H+1 hours, REECO Rad-Safe initial survey teams entered the test area and proceeded with the initial survey. Isodose rate contour lines were established for the 10,100, 1000, and 10,000 mr/hr lines by the initial survey team taking readings on pre-designated routes into the test area. (See Figure #2 Section IV).
- 2.2 At H+2 hours, a complete definition of the significant fallout area was easily discernible. The 1,000 and 10,000 mr/hr contours had assumed a distinct oval pattern. The diameter of the 1,000 mr/hr isodose rate contour was approximately 4.5 miles, and the diameter of the 10,000 mr/hr isodose rate contour was approximately 2.25 miles. After the initial survey, complete isodose rate surveys were taken at H+5 hours, and D+1, 2, 3, 4, 6, 11, 13, 20, 25, and 33 days. This data was recorded and plotted and is included in Section IV. The following special radiological surveys were made at the following locations:
 - a. Frenchman Flat
 - b. U2-A and U2-B Drill Rigs
 - c. Climax mine area
 - d. Radial survey from ground zero
 - e. Point survey of "8", "L", and "X" Stake roads
 - f. Papoose Lake Area
 - g. Helicopter survey downwind
 - h. U2-a, and U2-g
 - i. 4-300 and 4-480 bunkers
 - j. CP-1
 - k. Area 7

(See data in Section IV Tables XVII through XXV).

All of the surveys with the exception of the helicopter run were made by Rad-Safe personnel using portable hand instruments and in most cases four wheel drive vehicles.

B-3 Area Surveillance and Control

- 3.1 At H+2 hours the Test Directors Forward Control Point and the Rad-Safe facility Base Station were moved forward on the main access road to the edge of the contaminated area. From this point control was effected in the following manner.
- a. Radiation monitoring personnel were available at this facility for re-entry party monitors and area surveillance.
 - b. Appropriate radiation warning signs and barricades were placed on all of the access roads into the contaminated area by the initial survey party.
 - c. These signs and barricades were periodically checked and re-positioned by Rad-Safe personnel as the contamination underwent normal radioactive decay.
 - d. All personnel entering the control area were issued appropriate dosimeters, anti-contamination equipment, and accompanied by certified radiation monitors into the area.
 - e. Upon leaving the area, personnel and equipment were checked for contamination and decontaminated in the event it was necessary.
 - f. To insure better control, roving radiation monitors were constantly patrolling the perimeter of the radiation area to assure that no personnel entered the area unless authorized by the Test Group Director, and to assure that all authorized personnel were accompanied by a qualified radiation monitor.
- 3.2 On D+4 the inter-area highway from Area 9 to Area 51 was decontaminated and another Rad-Safe check station was established on the road on the opposite edge of the contaminated area. Personnel traveling the road were briefed on radiological conditions at the entrance check station. They were then logged in and the information was relayed to the exit check station via radio. At the exiting check station personnel and vehicles were monitored and decontaminated if necessary. The personnel were then logged out and the information was relayed via radio to the initiating check station confirming that the personnel had left the contaminated area.
- 3.3 The Indian Springs Air Force Base Rad-Safe facility provided support for the Air Force cloud sampling activities. Dosimetry devices and anti-contamination equipment was issued from the facility and when the sampling parties returned, personnel and equipment were monitored and decontaminated as necessary.

B-4 Decontamination Procedures

- 4.1 The Rad-Safe base stations at the perimeter of the contaminated area and at Indian Springs Air Force Base were equipped with facilities to decontaminate personnel and equipment. As the personnel and equipment came out of the contaminated area they were monitored and the contaminated parties were channeled through decontamination zones. Here they were decontaminated to comply with established N.T.S. Limits.
- 4.2 The major decontamination project was cleaning approximately 7 miles of the Area 51 access highway. On July 10, it was determined that by waiting for normal decay it would be approximately 30 days before re-opening of the road would be feasible. It was therefore requested by the A.E.C. that the road be decontaminated and re-opened by 0900 hours on July 11. With the support of the tanker trucks and the high pressure water from the fire truck used in the operation the contaminated dirt and fallout debris was washed from the road. Approximately 60,000 gallons of water were used in this process. The radiation levels were cut from a maximum of 1.2 R/hr to a maximum of 150 mr/hr. A radiation survey was made at 0900 hours on July 11, and the road areas officially re-opened for traffic at 1100 hours on July 11.
- 4.3 Vehicles traveling the road after the decontamination process picked up less than 5 mr/hr, whereas before decontamination they had picked up as high as 100 mr/hr.
- 4.4 The maximum personnel exposure received during this operation was 300 mr and the average exposure was 250 mr.

B-5 User Group Support

- 5.1 REECo Rad-Safe support services were provided to various groups and agencies in the recovery of samples and equipment from the test area. Support consisted of sample monitoring, personnel monitoring, contamination control, decontamination and monitor escort service.

C. Radiation Monitoring Instrumentation

C-1 Portable Hand Instruments

Portable radiation detection instruments used to obtain radiation survey measurements were as follows:

- a. Low Level gamma radiation:
Precision Model 111 (scintillation) instruments with six ranges between 0-5 mr/hr.
- b. Low Level beta-gamma radiation:
Beckman MX-5 (GM) instruments with three ranges between 0-20 mr/hr. Eberline E-112B-1 (GM) instruments with three ranges between 0-20 mr/hr.
- c. High level gamma radiation:
Tracerlab SU-10 (ion chamber) instruments with five ranges between 0-50 R/hr. Victoreen Radectors AGB-500-B-SR with two ranges between 0-500 R/hr.
- d. High level beta-gamma radiation:
Juno Model 6 (ion chamber) instruments with three ranges between 0-50 R/hr. Jordan AGB-500-B-SR (ion chamber) instruments with two ranges between 0-500 R/hr.

C-2 Remote Readout Instrumentation

- 2.1 Seventeen remote readout units were used in the event. These units were composed of Victoreen Radector instruments with the ion chamber removed and pre-positioned in the test area around ground zero. The readings were carried to the readout unit in CP-2 from the chamber in the test area via field wire. Thirteen of these units would read a maximum of 500 R/hr and the remaining four were 10,000 R/hr maximum.

C-3 Decay Recording Units

- 3.1 Remote instrumentation with attached recorders were used for decay studies. Jordan CDV-711-2 S.N. 7 instruments were used. (See Figure XVI Section IV)

D. Dosimetry

D-1 Personnel Dosimetry

- 1.1 Personnel gamma film badge packets were exchanged for 378 personnel, who entered the radiation exclusion area during the period July 7, 1962 through August 13, 1962. There were no radiation exposures above the maximum operation limit of 3 rem/quarter established by the Test Group Director.
- 1.2 All personnel entering the radiation exclusion area were issued self reading pocket dosimeters. These dosimeters were logged out to the individual and logged back in when he left the radiation area. Dosages were recorded and used as a supplemental daily record to the film badge record.

D-2 Experimental Dosimetry

- 2.1 Experimental film badge packets were collected from sampling stations located in the test area. The film was processed to measure gamma radiation from the cloud passage and contaminated fallout. The maximum measurement obtained was 580 Roentgens. The film badge data is contained in Section IV Table XV.
- 2.2 Three experimental film badges were placed on each of the five cloud sampling aircraft and one experimental badge was given to each of the ten participating flight members in addition to their personal badge. The maximum experimental badge reading was 1300 milliroentgen. The maximum reading for a personal badge from the flight crews was 1445 milliroentgen.

E. Sampling Analysis and Decay Studies

E-1 Fallout Tray Samples

Adhesive surfaced sample collectors were positioned at quarter-mile intervals on existing roads and trails around the shot area. Samples were collected and delivered to the Rad-Safe laboratory after the event for analysis and evaluation. (See Table XVI Section IV).

E-2 Decay Studies

Decay studies were conducted, using remote instrumentation with attached recorders. (See Figure XVI Section IV). Further decay study measurements were made by monitors every two hours, utilizing hand-carried portable instruments.

SECTION IV

Sampling and Measurement Data

The data listed in the following Section has been separated from the General Support activities listed in Sections I, II, and III to facilitate review and measurement results by concerned agencies. Procedures and equipment used to obtain the data are listed in Section III.

TABLE ISEDAN EVENT

Remote Monitoring Detector Data
Measurements in mr/hr (gamma)

TIME	5 1 MILE GZ 0°	2 1 MILE GZ 30°	3 1 MILE GZ 60°	4 1 MILE GZ 90°	5 1 MILE GZ 135°	6 1 MILE GZ 180°
1003	-	-	-	500,000	-	500,000
1005	200,000	-	-	500,000	-	500,000
1007	500,000	-	-	500,000	-	500,000
1009	700,000	-	-	500,000	-	500,000
1011	5,000,000	-	-	500,000	-	500,000
1017	7,500,000	-	-	500,000	-	500,000
1020	10,000,000	-	-	500,000	-	500,000
1027	10,000,000	-	-	500,000	-	500,000
1034	10,000,000	-	-	500,000	-	500,000
1048	10,000,000	-	-	500,000	-	500,000
1128	Subsequent Measurements Questionable Because of Suspected					
1132	Contamination of Detectors.					
1138						
1150						
1208						
1220						
1235						
1300						
1302						
1335						
1400						

(CONTINUED)

TIME	7 1 MILE GZ 225°	8 1 MILE GZ 270°	9 1 MILE GZ 300°	10 1 MILE GZ 380°	11 1.75 MILES GZ 300°	12 3 MILES GZ 345°
1003	15,000	-	500,000	10,000,000	-	-
1005	500,000	-	500,000	10,000,000	-	-
1007	500,000	-	500,000	10,000,000	-	-
1009	500,000	-	500,000	10,000,000	-	-
1011	500,000	-	500,000	10,000,000	-	-
1017	500,000	-	500,000	10,000,000	-	-
1020	500,000	-	500,000	10,000,000	-	-
1027	500,000	-	500,000	10,000,000	-	-
1034	500,000	-	500,000	10,000,000	-	-
1048	500,000	-	500,000	10,000,000	-	-
1128	400,000	-	-	-	-	-
1132	300,000	-	-	-	-	-
1138	200,000	-	-	-	-	-
1150	100,000	-	-	-	-	-
1208	50,000	-	-	-	-	-
1220	30,000	-	-	-	-	-
1235	15,000	-	-	-	-	-
1300	12,000	-	-	-	-	-
1302	6,000	-	-	-	-	-
1305	2,000	-	-	-	-	-
1335	1,500	-	-	-	-	-
1400	1,000	-	-	-	-	-

(CONTINUED)

TIME	13	14	15	16	17
	2.5 MILES GZ	UL5A NORTH 3.5 MILES GZ	2.5 MILES GZ	3 MILES GZ	2 MILES GZ
	345°	355°	15°	20°	40°
1003	-	-	-	200,000	35,000
1005	-	-	-	500,000	500,000
1007	-	-	-	500,000	500,000
1009	-	-	-	500,000	500,000
1011	-	1.0	-	500,000	500,000
1017	-	.0001	-	500,000	500,000
1020	-	.0001	-	500,000	500,000
1027	-	-	-	500,000	500,000
1034	-	-	-	500,000	500,000
1048	-	-	-	500,000	500,000
1128	-	-	-	-	-
1132	-	-	-	-	-
1138	-	-	-	-	-
1150	-	-	-	-	-
1208	-	-	-	-	-
1220	-	-	-	-	500,000
1235	-	-	-	-	500,000
1300	-	-	-	-	400,000
1302	-	-	-	-	200,000
1305	-	-	-	-	25,000
1335	-	-	-	-	22,000
1400	-	-	-	-	9,000

TABLE II
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
INITIAL SURVEY

2.2 Isodose Rate Contour Survey:

DATE	TIME	LOCATION	GAMMA DOSE RATE(mr/hr)
7/6/62	1116	.03 miles N Stake L-11-A	10
7/6/62	1117	50' S Stake L-13	100
7/6/62	1118	0.45 miles NNW Stake J-1	10
7/6/62	1118	0.3 miles N Stake D-3	10
7/6/62	1119	0.7 miles NNW Stake J-1	100
7/6/62	1119	0.1 miles S Stake L-13-A	1000
7/6/62	1120	At Stake D-2	100
7/6/62	1120	0.1 miles N Stake L-13-A	10,000
7/6/62	1121	0.2 miles N Stake D-2	1000
7/6/62	1121	0.1 miles NNW Stake L-52	1000
7/6/62	1122	0.2 miles NNW Stake L-52	10,000
7/6/62	1124	0.1 miles N Stake D-3	10,000
7/6/62	1120	0.1 miles N Stake E-1	10
7/6/62	1130	0.1 miles E Stake L-13-A	10
7/6/62	1131	0.1 miles N Stake E-2	100
7/6/62	1132	At Stake E-3	1000
7/6/62	1133	0.1 miles N Stake E-3	10,000
7/6/62	1135	0.6 miles E Stake G-3	10
7/6/62	1138	0.2 miles NE Stake J-4	10
7/6/62	1140	0.3 miles N Stake G-3	100
7/6/62	1140	0.1 miles NE Stake 8-C-3	100
7/6/62	1142	0.35 miles NE Stake 8-C-3	1000
7/6/62	1143	0.4 miles NE Stake 8-C-3	10,000
7/6/62	1143	0.4 miles NE Stake 8-C-3	10,000

(CONTINUED)

7/6/62	1152	At Stake F-12	10
7/6/62	1205	0.15 miles E Stake F-9	100
7/6/62	1226	0.2 miles E Stake F-3	1000

TABLE III
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
H+5 Hr. Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE(mr/hr)
7/6/62	1505	0.4 miles N Stake L-51	10
7/6/62	1505	0.5 miles N Stake L-12A	10
7/6/62	1505	0.1 miles N Stake L-13	100
7/6/62	1506	0.1 miles N Stake L-52	100
7/6/62	1507	0.2 miles N Stake L-52	1000
7/6/62	1507	0.3 miles NE Stake J-4	10
7/6/62	1508	0.3 miles NE Stake 8-C-3	100
7/6/62	1508	0.2 miles N Stake L-53	10,000
7/6/62	1510	0.3 miles N Stake L-13	1000
7/6/62	1510	0.1 miles N Stake L-14	10,000
7/6/62	1510	0.5 miles NE Stake 8-C-3	1000
7/6/62	1513	0.1 miles N Stake 8-C-2	10,000
7/6/62	1525	At Stake F-9	10
7/6/62	1530	0.2 miles NE Stake H-8	10
7/6/62	1531	0.3 miles NE Stake H-8	100
7/6/62	1535	2.6 miles E Gate 700	10
7/6/62	1536	0.1 miles E Stake F-8	100
7/6/62	1536	At Stake H-6	100
7/6/62	1540	1.9 miles E Gate 700	100
7/6/62	1550	0.9 miles E Gate 700	1000
7/6/62	1655	1.6 miles NE Stake H-5	10,000
7/6/62	1700	1.0 mile NE Stake H-5	1000

TABLE IV
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+1 Day Survey

<u>DATE</u>	<u>TIME</u>	<u>LOCATION</u>	<u>GAMMA DOSE RATE (mr/hr)</u>
7/7/62	0500	200' N Stake L-12A	10
7/7/62	0502	At Stake L-13	100
7/7/62	0504	0.1 mile N Stake L-13	1000
7/7/62	0507	100' S Stake L-14A	10,000
7/7/62	0520	At Stake L-50	10
7/7/62	0522	50' S Stake L-52	10
7/7/62	0527	0.2 miles N Stake L-52	100
7/7/62	0531	0.25 miles N Stake L-52	1000
7/7/62	0532	200' Stake L-54	10,000
7/7/62	0713	2.0 miles E Gate 700	10
7/7/62	0715	1.4 miles W Junction Area 13 road and Gate 700 road	10
7/7/62	0722	0.3 miles NE Stake 8-C-3	10
7/7/62	0725	0.5 miles NE Stake 8-C-3	100
7/7/62	0725	3.0 miles W Junction Area 13 road and Gate 700 road	100
7/7/62	0725	1.5 miles E Gate 700	100
7/7/62	0726	1.4 miles E Gate 700	1000
7/7/62	0729	150' NE Stake 8-C-2	1000
7/7/62	0845	0.3 miles NE Stake 8-C-3	10
7/7/62	0850	0.4 miles NE Stake 8-C-3	100
7/7/62	0900	150' NE Stake 8-C-2	1000
7/7/62	0920	Stake J-5 to Stake H-4 inclusive	10
7/7/62	0945	0.3 miles NE Stake H-3	100
7/7/62	1007	0.1 mile S Stake L-63-A	1000
7/7/62	1010	0.4 miles S Stake L-62	10,000

TABLE V
SEDAN EVENT

ISODOSE RATE CONTOUR DATA
D+2 Day Survey

<u>DATE</u>	<u>TIME</u>	<u>LOCATION</u>	<u>GAMMA DOSE RATE (mr/hr)</u>
7/8/62	0730	0.2 miles N Stake L-13	10
7/8/62	0731	0.1 miles N Stake L-13-A	100
7/8/62	0732	0.15 miles N Stake L-14	1000
7/8/62	0734	At Stake E-3	10
7/8/62	0735	0.15 miles N Stake E-3	100
7/8/62	0736	0.31 miles N Stake E-3	1000
7/8/62	0740	0.3 miles N Stake D-2	10
7/8/62	0741	0.2 miles N Stake D-3	100
7/8/62	0742	0.3 miles N Stake D-3	1000
7/8/62	0746	0.1 miles N Stake L-52	10
7/8/62	0747	At Stake L-53	100
7/8/62	0748	0.2 miles N Stake L-53	1000
7/8/62	0800	0.06 miles N Stake B-6	10
7/8/62	0801	0.25 miles N Stake B-6	100
7/8/62	0802	At Stake B-7	1000
7/8/62	0810	At Stake J-4	10
7/8/62	0811	0.1 miles NE Stake BC-3	100
7/8/62	0812	0.15 miles NE Stake BC-2	1000
7/8/62	0823	0.05 miles E Stake B-27	10
7/8/62	0826	At Stake B-26	100
7/8/62	0830	0.2 miles E Stake B-24	1000
7/8/62	0840	0.3 miles NE Stake H-6	10
7/8/62	0841	0.1 miles NE Stake H-7	100
7/8/62	0850	At Stake S-2	1000
7/8/62	0900	0.1 miles N Stake X-2	1000

TABLE VI
SEDAN EVENT

ISODOSE RATE CONTOUR DATA
D+3 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/9/62	0450	0.15 miles NE Stake L-13	10
7/9/62	0451	0.50 miles NE Stake L-13-A	100
7/9/62	0452	0.2 miles NE Stake L-13-A	1000
7/9/62	0455	At Stake L-18	1000
7/9/62	0457	At junction north of Stake L-78 and Stake 10-16	100
7/9/62	0502	.05 miles N junction Well 15 AC- cess Road	100
7/9/62	0510	0.15 miles NW Stake L-89	100
7/9/62	0513	At Stake H-1	100
7/9/62	0517	0.3 miles N Stake E-2	10
7/9/62	0519	0.4 miles N Stake E-2	100
7/9/62	0520	0.65 miles N Stake E-2	1000
7/9/62	0530	0.3 miles WNW Stake D-2	10
7/9/62	0539	0.2 miles ENE Stake D-3	100
7/9/62	0540	0.2 miles + 50' ENE Stake D-3	1000
7/9/62	0600	At Stake L-51	10
7/9/62	0610	0.9 miles S Stake L-54	100
7/9/62	0615	0.61 miles N Stake L-54	1000
7/9/62	0630	At Stake H-3	10
7/9/62	0634	At Stake H-5	10
7/9/62	0636	At Stake S-1	1000
7/9/62	0642	0.85 miles NW Stake S-1	100
7/9/62	0650	0.1 miles SW Stake H-7	10

TABLE VII
SEDAN EVENT

ISODOSE RATE CONTOUR DATA
D+4 DAY SURVEY

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/10/62	0501	At Stake L-13-A	10
7/10/62	0502	0.2 miles N Stake E-2	10
7/10/62	0503	0.6 miles E junction Mercury High- way and Photo Road	1000
7/10/62	0505	0.4 miles N Stake E-2	1000
7/10/62	0506	0.15 miles NE Stake L-13-A	100
7/10/62	0507	0.95 miles NE Stake E-2	1000
7/10/62	0507	0.5 miles NE Stake E-2	1000
7/10/62	0511	At Stake E-3	10
7/10/62	0519	At Gate 700	100
7/10/62	0520	0.2 miles N Stake D-2	10
7/10/62	0544	0.1 miles N Stake D-3	100
7/10/62	0546	0.3 miles N Stake D-3	1000
7/10/62	0550	0.1 miles S Stake L-78	100
7/10/62	0551	3.3 miles S Stake L-78	1000
7/10/62	0552	0.05 miles NW Stake L-52	10
7/10/62	0557	0.15 miles NW Stake L-52	100
7/10/62	0600	0.3 miles S Stake L-63	100
7/10/62	0602	0.2 miles S Stake L-61A	1000
7/10/62	0603	0.8 miles NE Stake L-54	1000
7/10/62	0613	At Stake H-3	10
7/10/62	0614	At Stake H-4	10
7/10/62	0615	1.1 miles S Stake H-5	100
7/10/62	0616	0.35 miles E junction L-12-A Road and Area 10 Road	100
7/10/62	0617	0.95 miles E junction L-12-A Road and Area 10 Road	10
7/10/62	0622	0.95 miles NE Stake H-11	10
7/10/62	0624	1.15 miles NE Stake H-11	100

TABLE VIII
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+5 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/11/62	0520	0.1 mile N Stake E-1	10
7/11/62	0521	0.6 miles N Stake E-1	100
7/11/62	0525	1.5 miles N Stake E-1	1000
7/11/62	0527	0.2 miles NNE Stake L-13-A	100
7/11/62	0533	0.8 miles NW Stake D-1	10
7/11/62	0534	1.2 miles NE Stake D-1	100
7/11/62	0537	1.4 miles NE Stake D-1	1000
7/11/62	0546	0.4 miles SW Stake 10-11	100
7/11/62	0551	0.7 miles SW Stake 10-11	1000
7/11/62	0556	0.9 miles W Stake L-18	1000
7/11/62	0603	0.1 mile N Stake L-52	10
7/11/62	0607	0.3 miles N Stake L-52	100
7/11/62	0612	2.2 miles N Stake L-52	1000
7/11/62	0630	At Stake X-1	100
7/11/62	0632	0.5 miles N Stake 8-6	100
7/11/62	0636	0.1 miles SSW Stake L-78	100
7/11/62	0650	0.8 miles NE Stake H-11	10
7/11/62	0651	1.1 miles E Stake H-11	100
7/11/62	0714	0.8 miles E Stake H-9	10
7/11/62	0716	1.0 mile E Stake H--9	100
7/11/62	0718	0.8 miles S Stake L-64	100
7/11/62	0720	1.4 miles S Stake L-64	1000
7/11/62	0725	0.14 miles NE Stake X-3	100
7/11/62	0738	0.6 miles NW Stake 8-4	100
7/11/62	0744	At Stake H-5	10

TABLE IX
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+6 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/12/62	0515	0.3 miles N Stake E-2	10
7/12/62	0516	0.4 miles N Stake E-2	100
7/12/62	0520	1.3 miles N Stake E-2	1000
7/12/62	0530	0.1 miles NE Stake D-1	10
7/12/62	0531	0.1 miles NE Stake D-1	100
7/12/62	0536	1.6 miles NE Stake D-1	1000
7/12/62	0550	0.2 miles NW Stake L-52	10
7/12/62	0551	0.4 miles NW Stake L-52	100
7/12/62	0556	2.1 miles NE Stake L-52	1000
7/12/62	0610	0.2 miles W Stake 8-8	10
7/12/62	0620	1.0 mile E Stake H-11	10
7/12/62	0625	1.6 miles E Stake H-11	100
7/12/62	0727	0.8 miles E Stake H-9	10
7/12/62	0729	1.2 miles E Stake H-9	100
7/12/62	0730	0.05 miles NE Stake L-13-A	10
7/12/62	0731	0.15 miles NE Stake L-13-A	100
7/12/62	0732	0.55 miles NE Stake L-14-A	1000
7/12/62	0733	0.9 miles NE Stake L-14-A	1000
7/12/62	0734	0.15 miles NE Stake L-18-A	100
7/12/62	0740	0.15 miles NW Stake L-19	100
7/12/62	0750	0.5 miles N Stake R-4	10
7/12/62	0810	0.55 miles SW Stake 10-11	100
7/12/62	0811	1.2 miles SW Stake 10-11	1000
7/12/62	0815	At Stake L-76-A	100
7/12/62	0830	0.6 miles S Stake L-63-A	100
7/12/62	0831	1.4 miles S Stake L-63-A	1000
7/12/62	0845	0.25 miles SW Stake H-2	10

TABLE X
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+11 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/17/62	0341	At Stake L-13-A	10
7/17/62	0344	0.5 miles N Stake L-14-A	100
7/17/62	0348	0.7 miles NW Stake L-15	1000
7/17/62	0355	0.2 miles W Stake L-16-A	1000
7/17/62	0400	0.35 miles NNW Stake L-16-A	1000
7/17/62	0405	0.15 miles SW junction 10 Stake Road and Circle Road	1000
7/17/62	0408	0.3 miles W junction 10 Stake Road and Circle Road	1000
7/17/62	0413	0.1 miles S Stake L-58	100
7/18/62	0417	0.3 miles N Stake L-61-A	100
7/17/62	0437	At Stake L--78	10
7/17/62	0444	At Stake L-76	100
7/17/62	0448	1.25 miles N Gate 700	10
7/17/62	0449	0.7 miles S Gate 700	100
7/17/62	0536	0.1 mile N Stake E-3	10
7/17/62	0537	0.5 miles N Stake E--4	100
7/17/62	0550	0.1 miles SW Stake D--4	100
7/17/62	0552	0.5 miles NE Stake D-3	10
7/17/62	0610	0.9 miles NW Stake 8-4	10
7/17/62	0618	0.5 miles N Stake 8-3	100
7/17/62	0622	0.3 miles E Stake 8-2	100
7/17/62	0642	0.4 miles E Stake L-55	100
7/17/62	0650	0.1 miles S Stake L--53	10

TABLE XI
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+13 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/19/62	0615	0.05 miles S Stake L-14	10
7/19/62	0616	0.15 miles NE Stake L-15	100
7/19/62	0627	0.1 miles N Gate 700	10
7/19/62	0631	0.1 miles N Stake E-3	10
7/19/62	0636	0.4 miles N Stake E-5	100
7/19/62	0644	50' S Stake D-4	10
7/19/62	0646	0.1 mile S Well 15A	10
7/19/62	0700	0.1 mile NNE Stake L-53	10
7/19/62	0706	0.4 miles NNE Stake L-53	10
7/19/62	0708	0.4 mile NNE Stake L-54	100
7/19/62	0732	At Stake E-6	100
7/19/62	0734	0.1 Mile NW Stake L-60	100
7/19/62	0739	0.3 miles S Stake L-62	100
7/19/62	0742	At Stake L-76	100
7/19/62	0744	0.1 miles N Stake L-67	10
7/19/62	0750	0.3 miles NW Stake L-15	100
7/19/62	0757	0.1 mile N Stake E-6	1000
7/19/62	0800	0.6 miles W Stake L-17	1000
7/19/62	0805	0.5 miles NW Stake L-17	100
7/19/62	0810	0.1 mile SE junction L Road and	100
7/19/62	0815	0.2 miles S Stake L-58	1000
7/19/62	0825	0.4 miles SW Stake L-57	1000
7/19/62	0840	0.1 mile NW Stake 8-4	100
7/19/62	0842	0.4 miles NW Stake 8-4	10

TABLE XII
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+20 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/26/62	0800	At Stake L-14	10
7/26/62	0803	At Stake L-16	100
7/26/62	0805	At Stake L-17	100
7/26/62	0810	0.2 miles NE Stake L-18-A	10
7/26/62	0812	At Stake 10-11	10
7/26/62	0815	At Stake 10-6	100
7/26/62	0820	0.05 miles NW Stake L-77-A	10
7/26/62	0825	At Stake L-63	10
7/26/62	0829	At Stake L-58	100
7/26/62	0831	0.1 mile N Stake E-8	1000
7/26/62	0832	0.2 miles S Stake E-8	1000
7/26/62	0834	0.2 miles E Stake E-8	1000
7/26/62	0838	0.45 miles NW Stake E-8	1000
7/26/62	0840	0.3 miles W Stake E-8	1000
7/26/62	0845	0.45 miles NW Stake L-57	100
7/26/62	0848	0.1 miles NE Stake L-56	100
7/26/62	0849	0.15 miles E Stake L-55	100
7/26/62	0851	At Stake D-5	100
7/26/62	0853	0.1 miles S Stake E-5	100
7/26/62	0855	0.4 miles E Stake #-6	100
7/26/62	0900	0.2 miles N Stake E-3	10
7/26/62	0901	0.3 miles W Stake E-3	10
7/26/62	0912	0.3 miles N Stake L-53	10
7/26/62	0915	0.1 miles W Stake 8-9	10
7/26/62	0920	0.1 miles W Stake 8-21	10
7/26/62	0930	0.15 miles N Stake X-3	10

TABLE XIII
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+25 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/31/62	0550	At Stake L-14	10
7/31/62	0552	200' N Stake L-14-A	100
7/31/62	0554	At Stake L-16-A	100
7/31/62	0556	At Stake L-18-A	10
7/31/62	0558	20' SW Stake 10-6	100
7/31/62	0600	300' SW Stake 10-11	10
7/31/62	0602	200' SSE Stake L-77	10
7/31/62	0603	200' S Stake L-62-A	10
7/31/62	0604	At Stake L-58	100
7/31/62	0605	At Stake L-58-A	100
7/31/62	0608	500' N Stake L-56	100
7/31/62	0611	100' E Stake 8--2	100
7/31/62	0614	1200' N Stake 8-3	10
7/31/62	0617	At Stake 8-21	10
7/31/62	0620	300' E Stake 8-1	100
7/31/62	0620	800' W Stake 8-9	10
7/31/62	0622	300' W Stake 8-8	10
7/31/62	0624	100' N Stake 8-7	10
7/31/62	0626	At Stake L-53	10
7/31/62	0628	400' NW Stake D-3	10
7/31/62	0630	200' NW Stake D-4	100
7/31/62	0633	500' N Stake E-3	10
7/31/62	0635	At Stake E-4	100

TABLE XIV
SEDAN EVENT
ISODOSE RATE CONTOUR DATA
D+ 33 Day Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
8/8/62	0545	At Stake L-14	10
8/8/62	0547	0.6 miles W Stake L-15	100
8/8/62	0550	0.9 miles W Stake L-15	100
8/8/62	0605	At Stake L-55	10
8/8/62	0608	0.45 miles NE Stake L-55	100
8/8/62	0611	0.8 miles NE Stake L-55	100
8/8/62	0618	At Stake L--59	100
8/8/62	0625	0.3 miles NE Stake L-18	10
8/8/62	0629	0.6 miles SW Stake 10-11	10
8/8/62	0633	0.1 mile SW Stake 10-6	100
8/8/62	0640	0.85 miles N Stake L-75	10
8/8/62	1652	200' Stake L-62-A	10
8/8/62	0658	200' S Stake L-58	100
8/8/62	0715	0.3 miles SW Stake D-4	10
8/8/62	0718	0.3 miles NE Stake D-4	100
8/8/62	0726	0.15 miles N Stake E-5	100
8/8/62	0730	0.8 miles S Stake E-4	10
8/8/62	0635	0.2 miles E Scooter Crater	100

TABLE XV
SEDAN EVENT

Experimental Dose Report
Film Badge Packets were Placed 7/5/62
Badges were gathered 8/7/62 and processed 8/8/62

STAKE NUMBER	DOSE		STAKE NUMBER	DOSE	
	LOW RANGE MR/HR	HIGH RANGE MR/HR		LOW RANGE MR/HR	HIGH RANGE MR/HR
L-9	625		A-3	460	
L-13-A		41,700	L-6	460	
L-18-A		400,000	L-6-A	450	
10-11		154,500	L-7	460	
10-12		162,000	L-11	540	
R-3		67,500	L-11-A	365	
R-4		44,150	L-13	3960	
R-5		33,300	L-14	4050	
R-7		39,700	L-14-A	4315	
L--81		68,750	L-16	4575	
8-3		580,000	L-17-A	4630	
8-21		540,000	L-18	4210	
8-C-2		185,500	10-13	4260	
C-1-A	460		R-2	4630	
C-2	310		X-4	4840	
L-50	260		X-3	4470	
L-52		5,750	X-2	4945	
L-1	2760		X-1	4470	
L-1-A	2940		8-4	5000	
L-2	3610		8-22	4840	
L-2-A	2940		8-C-3	960	
L-3	1430		8-C-4	390	
L-3-A	1785		E-1	960	
L-4	1535		D-1	1520	
L-5	450		J-1	290	

TABLE XVI

SEDAN EVENT
FALLOUT TRAY DATA

Trays Placed 7/5/1962
Collected 8/8/62 and Counted for Gross Beta 8/9/62

STAKE	TIME	D/M/TRAY	STAKE	TIME	D/M/TRAY
L-11	1019	1.07×10^6	A-3	1111	3.1×10^5
L-12	1022	1.11×10^6	L-5	14	2.7×10^5
L-13	1024	1.41×10^5	L-4	16	3.1×10^5
L-13A	26	2.7×10^6	L-3-A	18	2.5×10^5
			L-3	20	3.2×10^5
L-14	28	1.25×10^7	L-2-A	21	2.8×10^5
L-52	29	8.6×10^5	E-1	23	1.9×10^6
L-14-A	31	1.24×10^7	L-51	25	9.8×10^5
L-16-A	33	1.2×10^7	J-1	27	1.3×10^6
L-17-A	36	1.2×10^7	Y-4	29	1.1×10^7
L-18	38	1.2×10^7	Y-3	31	1.1×10^7
L-18-A	40	1.1×10^7	Y-2	33	1.0×10^7
10-11	43	7.0×10^6	6-1	35	1.1×10^7
10-12	46	7.3×10^6	8-4	37	1.1×10^7
10-13	48	6.3×10^6	8-21	39	9.1×10^6
R-1	50	7.4×10^6	8-22	41	1.0×10^7
R-3	52	7.9×10^6	8-C-2	43	1.16×10^7
R-4	1048	9.4×10^6	8-C-3	45	8.1×10^4
R-5	1100	9.8×10^6	L-1	47	2.8×10^5
R-7	1102	9.1×10^6	L-1-A	48	2.9×10^5
L-81	1104	8.4×10^6	8-C-4	50	1.1×10^5
L-7	06	3.0×10^5	L-2	52	4.7×10^5
L-6-A	07	5.4×10^5			
L-6	09	3.2×10^5			

continued

DATE	TIME	SPECIAL SURVEY REQUESTED BY LRL I	GAMMA DOSE RATE (mr/hr)
7/13/62	1900	Stake J-2	1
7/13/62	1917	Stake 8-1	400
7/13/62	1922	Stake L-55	200
7/13/62	1927	Stake 10-1	1000
7/13/62	1930	Stake 8-2	375
7/13/62	1935	Stake 8-20	450
7/13/62	1937	Stake 8-4	300
7/13/62	1940	Stake X-1	100
7/13/62	1942	Stake X-2	350
7/13/62	1946	Stake X-3	175
7/13/62	1950	Stake 8-21	500
7/13/62	1955	Stake 8-22	350
7/13/62	2000	Stake 8-23	250

SPECIAL SURVEY REQUESTED BY LRL II

7/13/62	1630	Stake L-13	1.5
7/13/62	1632	Stake L-13-A	5
7/13/62	1650	Stake L-15	325
7/13/62	1656	Stake L-15-A	300
7/13/62	1658	Stake L-16	225
7/13/62	1705	Stake L-16-A	250
7/13/62	1716	Stake L-17	250
7/13/62	1725	Stake L-17-A	225
7/13/62	1731	Stake L-18	140
7/13/62	1733	Stake L-18-A	35
7/13/62	1737	Stake L-60	150

DATE	TIME	SPECIAL SURVEY REQUESTED BY LRL II	GAMMA DOSE RATE (mr/hr)
7/13/62	1742	Stake L-61-A	250
7/13/62	1755	Stake L-62	90
7/13/62	1800	Stake L-62-A	60
7/13/62	1807	Stake L-63	35
7/13/62	1812	Stake L-63-A	30
7/13/62	1815	Stake L-64	35
7/13/62	1818	Stake L-64-A	20
7/13/62	1820	Stake L-65	20
7/13/62	1823	Stake L-65-A	20
7/13/62	1826	Stake L-67	15
7/13/62	1838	Stake L-75	175
7/13/62	1840	Stake L-75-A	150
7/13/62	1850	Stake L-76	125
7/13/62	1853	Stake L-76-A	90
7/13/62	1900	Stake L-77	40
7/13/62	1904	Stake L-78	30
7/13/62	1914	Stake L-88	20
7/13/62	1926	Stake X-4	90
7/13/62	1934	Stake R-1	25
7/13/62	1942	Stake 10-11	15
7/13/62	1944	Stake 10-12	15
7/13/62	1946	Stake 10-13	25
7/13/62	1948	Stake 10-14	40
7/13/62	1950	Stake 10-15	30
7/13/62	1952	Stake 10-16	25

TABLE XVII
SEDAN EVENT
Drainage Wind Data

Gamma Dose Measurements Obtained In
Frenchman Flat During Drainage Wind Survey

DATE	TIME	LOCATION	GAMMA DOSE RATE (mr/hr)
7/7/62	0200	At Security Station (✓ Stake F-A-7)	4
7/7/62	0205	At Well 5-B	1
7/7/62	0230	At Ground Zero	<.05
7/7/62	0245	0.25 miles North Well 5-B	4
7/7/62	0248	At Well 5-B	7
7/7/62	0250	At Stake F-A-6	8
7/7/62	0305	1.0 mile West Well 5-B	8
7/7/62	0310	At junction Mercury Highway and Main Access Road	1
7/7/62	0325	At Well 5-b	6
7/7/62	0325	At Security Gate 200	Bkg
7/7/62	0328	1.2 miles S Stake F-1	1
7/7/62	0330	At Stake F-1	1.5
7/7/62	0332	At Stake F-2	1.5
7/7/62	0333	At Stake F-4	2
7/7/62	0334	At Stake F-5	2
7/7/62	0335	At Ground Zero	2
7/7/62	0337	At Stake F-5-C	1
7/7/62	0338	At Stake F-6	1
7/7/62	0340	At the junction Mercury Highway and Main Access Road	2
7/7/62	0340	At Stake F-7-A	5
7/7/62	0341	At Stake F-7-A	5
7/7/62	0341	At Stake F-7-C	6
7/7/62	0342	At Stake F-8	7

CONTINUED

DATE	RATE	LOCATION	GAMMA DOSE RATE (mr/hr)
7/7/62	0342	At Stake F-8-A	7
7/7/62	0344	At Stake F-9-A	5
7/7/62	0346	At Stake 701-A	7
7/7/62	0347	At Stake 702-A	9
7/7/62	0349	At Stake 702-B	10
7/7/62	0352	At Stake 703-C	4
7/7/62	0353	0.5 miles NE Ground Zero	3.5
7/7/62	0353	At Stake 704-A	1
7/7/62	0353	At Stake 704-B	1.5
7/7/62	0356	At Stake 705-C	4
7/7/62	0357	At junction Mercury Highway and CP Access Road	4
7/7/62	0400	At Ground Zero	2.5
7/7/62	0405	At Well 5-B	1
7/7/62	0410	At Security Station (~ Stake F-A-7)	6
7/7/62	0428	At Ground Zero	4.5
7/7/62	0448	At Security Station (~ Stake F-A-7)	6
7/7/62	0525	At Ground Zero	1
7/7/62	0535	At Security Station (~ Stake F-A-7)	4.5

TABLE XVIIISEDAN EVENT

Dose Rate Measurements of Interest

DATE	TIME	SPECIAL SURVEY REQUESTED BY LRL I	GAMMA DOSE RATE(mr/hr)
7/13/62	0630	Stake E-4	450
7/13/62	1632	Stake E-5	550
7/13/62	1633	Stake E-6	2000
7/13/62	1640	Stake E-2	1
7/13/62	1642	Stake E-3	5
7/13/62	1647	Stake D-1	125
7/13/62	1649	Stake D-3	3
7/13/62	1651	Stake D-4	100
7/13/62	1657	Stake	550
7/13/62	1707	IRL P-13 Photographic Station	500
7/13/62	1712	10-300 Bunker	1000
7/13/62	1720	Photographic Station 1000' S 10-300 Bunker	500
7/13/62	1726	Stake L-52	1
7/13/62	1732	Stake L-53	110
7/13/62	1734	Stake L-54	250
7/13/62	1750	Stake 8-24	225
7/13/62	1752	Stake 8-25	70
7/13/62	1759	Stake 8-26	30
7/13/62	1801	Stake 8-27	1.5
7/13/62	1811	Stake 8-c-2	35
7/13/62	1820	U-10A	40
7/13/62	1823	Stake 8-10	70
7/13/62	1825	Stake 8-2	90
7/13/62	1830	Stake 8-9	55
7/13/62	1832	Stake 8-8	50
7/13/62	1850	U-2-A	30

TABLE XIX
SEDAN EVENT

Dose Rate Measurements of Interest

DATE	TIME	SPECIAL SURVEY OF DRILL RIGS U2-A AND U2-B (LRL)	GAMMA DOSE RATE (mr/hr)
7/16/62	1330	0.5 miles W Stake 8-7	10
7/16/62	1335	300' S Stake 8-7	10
7/16/62	1336	At Stake 8-7	20
7/16/62	1340	At Stake 8-8	20
7/16/62	1345	Haney-Williams Drill Rig	8-15
7/16/62	1345	Haney-Williams Drill Rig At Contact	25
7/16/62	1355	At Stake L-53	10
7/16/62	1400	At 10-300 Bunker	450
7/16/62	1415	At U-10-A	200
7/16/62	1420	At U-10-B	50

SURVEY OF CLIMAX MINE AREA

7/24/62	1300	Interior of Mine	.03
7/24/62	1303	Mine Portal	2
7/24/62	1310	At Stake L-87	1.5
7/24/62	1312	500' N of Portal	3.0
7/24/62	1312	500 N of Portal: Ground Contact	5.0
7/24/62	1315	At Stake L-86	1.5
7/24/62	1316	At Stake L-85	1.5
7/24/62	1317	At Stake L-84	2.0
7/24/62	1318	At Stake L-83	3.0
7/24/62	1319	At Stake L-82	2.5
7/24/62	1320	At Stake L-81	2.5

TABLE XX
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Straight Line Point Survey at Pre-determined Distances	Gamma Dose Rate (mr/hr)
8/2/62	1445	0.4 Miles W Junction Area 15 Road and Circle Road (Reference)*	120
8/2/62	1450	0.05 miles SE Reference*	125
8/2/62	1454	0.1 mile SE Reference*	150
8/2/62	1458	0.15 miles SE Reference *	160
8/2/62	1500	0.2 miles SE Reference *	185
8/2/62	1502	0.25 miles SE Reference *	180
8/2/62	1505	0.3 miles SE Reference *	350
8/2/62	1507	0.35 Miles SE at crater rim (end of Reference)	500
8/2/62	1520	At Stake L-54 (Decontaminated Area)	30
8/2/62	1520	At Stake L-54 (Non-Decontaminated Area)	35
8/2/62	1525	1500' SSW ground zero (Reference Point)	425
8/2/62	1526	250' SSW Reference	400
8/2/62	1530	500' SSW Reference	400
8/2/62	1533	750' SSW Reference	375
8/2/62	1537	1000' SSW Reference (End of Reference)	350
8/2/62	1545	At Stake L-18 (Decontaminated Area)	20
8/2/62	1546	At Stake L-18 (Non-Decontaminated Area)	60
8/2/62	1550	At Stake L-14A (Decontaminated Area)	20
8/2/62	1551	At Stake L-14A (non Decontaminated Area)	45

TABLE XXI
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Point Survey SSW Ground Zero At 600' and 1100'	Gamma Dose Rate (mr/hr)
8/15/62	0920	600' SSW of SSW Lip of Crater	275
8/15/62	0923	1100' SSW of SSW Lip of Crater	190
Radial Survey at: 1, 1.5, 2 and 3 Radii from Ground Zero			
8/15/62	1830	640' N ground zero	150
8/15/62	1833	960' N ground zero	250
8/15/62	1837	1280' N ground zero	175
8/15/62	1840	1920' N ground zero	100
8/15/62	1855	640' E ground zero	125
8/15/62	1857	960' E ground zero	250
8/15/62	1859	1280' E ground zero	150
8/15/62	1902	1920' E ground zero	175
8/15/62	1918	640' S ground zero	300
8/15/62	1920	960' S ground zero	500
8/15/62	1923	1280' S ground zero	350
8/15/62	1927	1920' S ground zero	300
8/15/62	1940	640' W ground zero	300
8/15/62	1942	960' W ground zero	400
8/15/62	1946	1280' W ground zero	350
8/15/62	1950	1920' W ground zero	300

* 1280' used as crater diameter.
Reference is surface zero.
All directions taken with magnetic compass.

TABLE XXII
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Point Survey of "8", "L" and "X" Stake Roads	Gamma Dose Rate (mr/hr)
8/13/62	1830	At Stake L-63	2
8/13/62	1833	At Stake L-63-A	2
8/13/62	1838	At Stake X-4	35
8/13/62	1840	At Stake X-3	18
8/13/62	1844	At Stake X-2	40
8/13/62	1846	At Stake X-1	6
8/13/62	1855	0.4 Miles NNE Stake L-55	300
8/13/62	1859	0.9 Miles NNE Stake L-55	450
8/13/62	1905	At Stake L-58	25
8/13/62	1909	At Stake L-61-A	65
8/13/62	1912	At Stake L-62	7
8/13/62	1915	At Stake L-62-A	3
8/13/62	1925	At Stake 8-4	30
8/13/62	1930	Site U-10-B (General Area)	15
8/13/62	1935	At Stake 8-10	13
8/13/62	1937	At Stake 8--9	12
8/13/62	1940	At Stake 8-8	10
8/13/62	1947	At Stake L-55	25
8/13/62	1959	At Stake L-51	Bkg
8/13/62	2002	At Stake L-52	Bkg
8/13/62	2004	At Stake L-53	7
8/13/62	2007	At Stake L-54	15
8/13/62	2008	At Stake 8-1	40
8/13/62	2010	At Stake 8-2	18
8/13/62	2015	At Stake 8-3	60

TABLE XXIII
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Location: Papoose Lake	Gamma Dose Rate(mr/hr)
7/6/62	1730	At Junction FCDA Road and Papoose Road	Bkg
7/6/62	1736	1.0 mile E Junction FCDA Road and Papoose Rd.	Bkg
7/6/62	1742	2.0 miles E Junction FCDA Rd. and Papoose Rd.	Bkg
7/6/62	1748	3.0 miles E Junction FCDA Road and Papoose Rd.	Bkg
7/6/62	1754	4.0 miles E Junction FCDA Rd. and Papoose Rd.	Bkg
7/6/62	1800	5.0 miles E Junction FCDA RD. and Papoose Rd.	Bkg
7/6/62	1806	6.0 Miles E Junction FCDA Road and Papoose RD.	Bkg
7/6/62	1812	7.0 miles E Junction FCDA Rd. and Papoose RD.	Bkg
7/6/62	1814	7.2 miles E Junction FCDA Rd. and Papoose Rd.	Bkg
*	*	At this point Papoose Rd. follows NE Direction	
7/6/62	1818	0.8 miles NE of direction change	Bkg
7/6/62	1824	1.8 miles NE of direction change	Bkg
7/6/62	1830	2.8 miles NE of direction change	Bkg
7/6/62	1832	3.0 miles NE of direction change	Bkg
*	*	At this point Papoose Rd. follows N Direction	
7/6/62	1836	0.8 miles N of direction change	Bkg
7/6/62	1842	1.8 miles N of direction change	Bkg
7/6/62	1848	2.8 miles N of direction change	Bkg
7/6/62	1854	3.8 miles N of direction change	Bkg
7/6/62	1900	5.2 miles N of direction change	Bkg
*	*	At this point road follows W direction	
7/6/62	1912	1.6 miles W of direction change	Bkg
7/6/62	1918	2.6 miles W of direction change	
7/6/62	1920	Junction Mercury Rd. and Papoose Rd.	Bkg
7/6/62	1930	Junction Mercury Rd. and Area 13 Rd.	Bkg
(Location of Gate 700 Temporary)			

TABLE XXIV
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Helicopter Monitoring (1000' Downwind, 6000' Altitude)	Gamma Dose Rate (mr/hr)
7/7/62	1219	SE ground zero to SW ground zero I	5000
7/7/62	1220	SE ground zero to SW ground zero I	7000
7/7/62	1221	SE ground zero to SW ground zero I	1000
7/7/62	1227	SE ground zero to SW ground zero II	8000
7/7/62	1228	SE ground zero to SW ground zero II	1000
7/7/62	32	SE ground zero to SW ground zero II	Bkg
	*	Two passes SE to SW made in helicopter	
Party Monitor: NRDL Recovery			
7/8/62	1700	Gate 700	100
7/8/62	1705	Stake 10-11	100
7/8/62	1710	Well 15-A	60
7/8/62	1715	Stake L-64-A	200
7/8/62	1720	Stake 10-13	100
7/8/62	1725	Stake L-16-A	3000
Survey of U2a, and U2g			
7/12/62	1500	U2g complete area average	2
7/12/62	1505	NE Sector U2a	160
7/12/62	1510	SE Sector U2a	120
		U2a complete area average	140
7/12/62	1520	NE Sector construction site between U2a & U3a	120
7/12/62	1525	SE Sector construction site between U2a & U3a	95
		Complete construction area average	100
7/12/62	1530	Outside Bunker 2-300	50
7/12/62	1532	Inside Bunker 2-330	4

TABLE XXV
SEDAN EVENT

Dose Rate Measurements of Interest

Date	Time	Location: 4-300 and 4-480 Bunkers (Party Monitor for USGS and EG&G)	Gamma Dose Rate (mr/hr)
7/6/62	1003	150° E 4-300 Bunker	0.2
7/6/62	1015	150° 4-300 Bunker	0.2
7/6/62	1037	150° E 4-300 Bunker	0.2
7/6/62	1045	Junction Area 4 Road and Area 12 Road	0.1
7/6/62	1050	BJY	
<hr/>			
Area 7 (Party Monitor for Project 9.2 & 9.3)			
7/6/62	1002	Stake 7-3	.05
7/6/62	1015	Stake 7-3	.05
7/6/62	1030	Stake 7-3	.05
7/6/62	1040	Stake 7-3	.05
<hr/>			
CP I (Protection of EG&G Film)			
7/7/62	0437	Inside Building CP-1	0.4
7/7/62	0438	Outside Building CP-1	1.5
7/7/62	0457	Inside Building CP-1	0.25
7/7/62	0459	Outside Building CP-1	1.7
7/7/62	0530	Inside Building CP-1	0.2
7/7/62	0530	Outside Building CP-1	0.7
7/7/62	0600	Inside Building CP-1	0.2
7/7/62	0600	Outside Building CP-1	0.9
7/7/62	0630	Inside Building CP-1	0.2
7/7/62	0630	Outside Building CP-1	0.8

SEDAN EVENT
● LOCATIONS OF REMOTE MONITORING DETECTORS

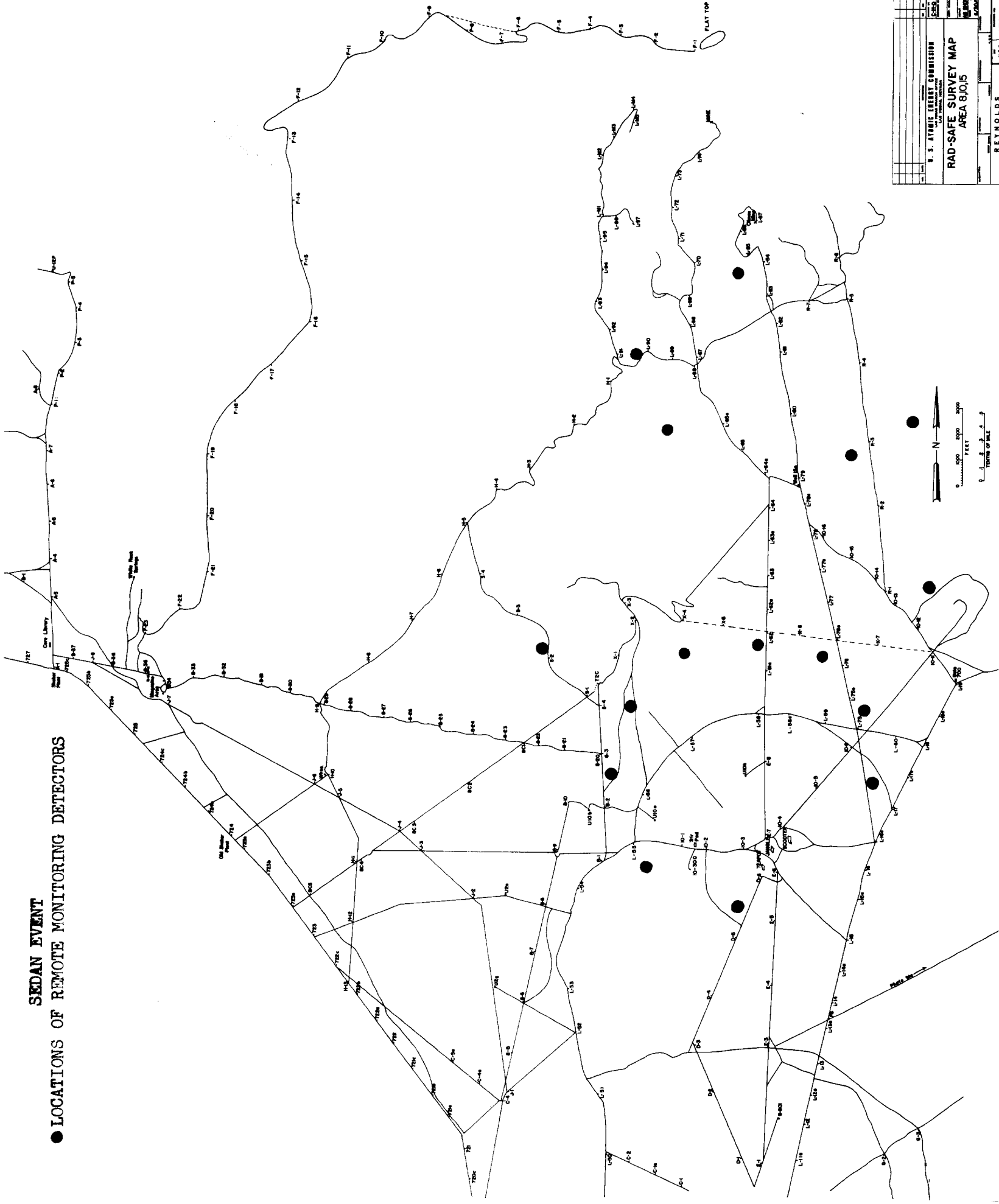


FIGURE I

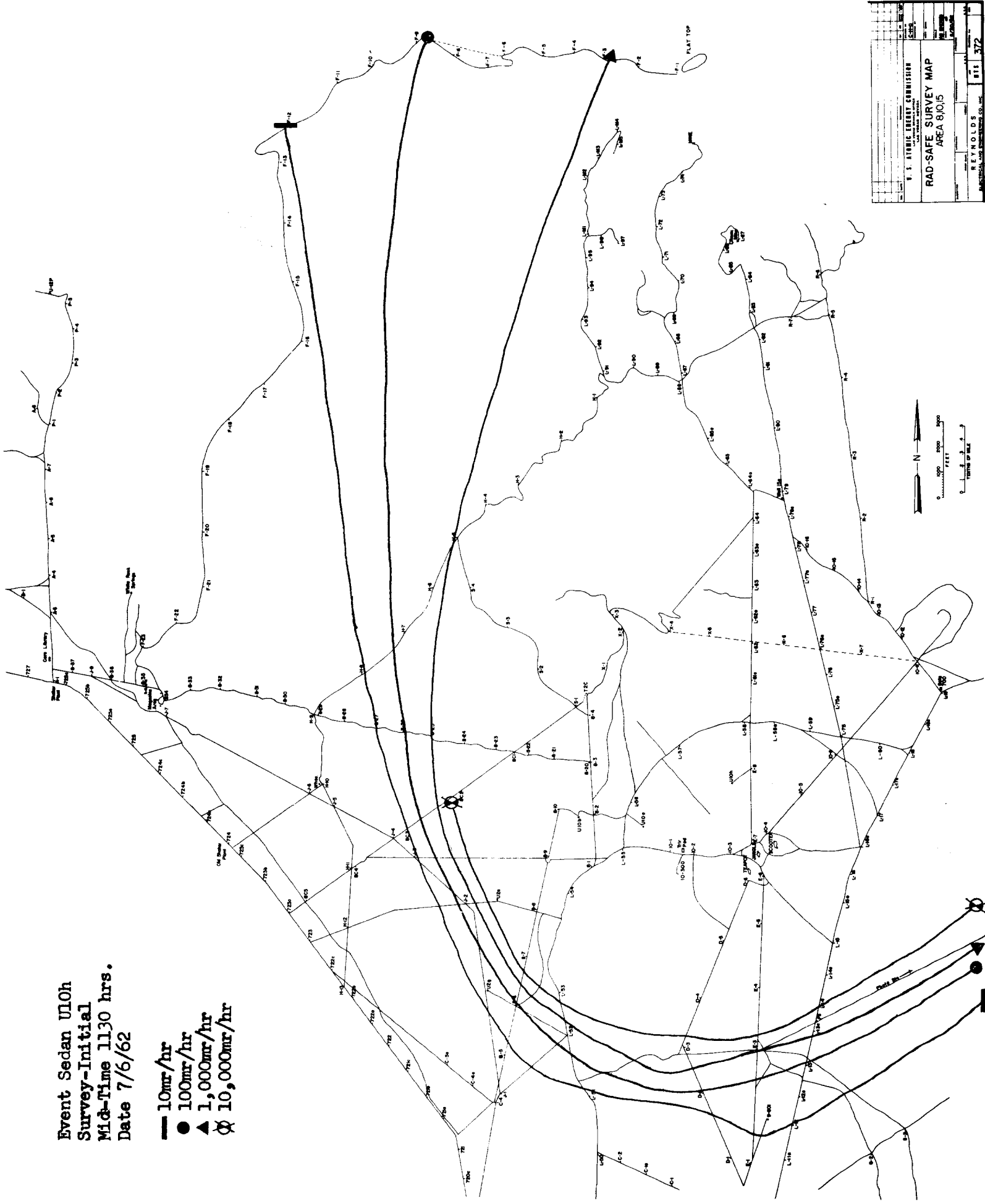
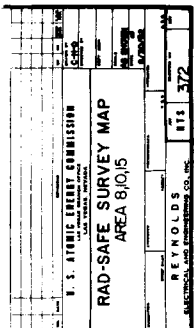


FIGURE II

Event Sedan ULOh
Survey-H+5 hrs.
Mid-Time 1525 hrs.
Date 7/6/62

— 10 mr/hr
● 100 mr/hr
▲ 1,000 mr/hr
⊗ 10,000 mr/hr

U.S. ATOMIC ENERGY COMMISSION
RAD-SAFE SURVEY MAP
AREA 81015
REYNOLDS
811 372



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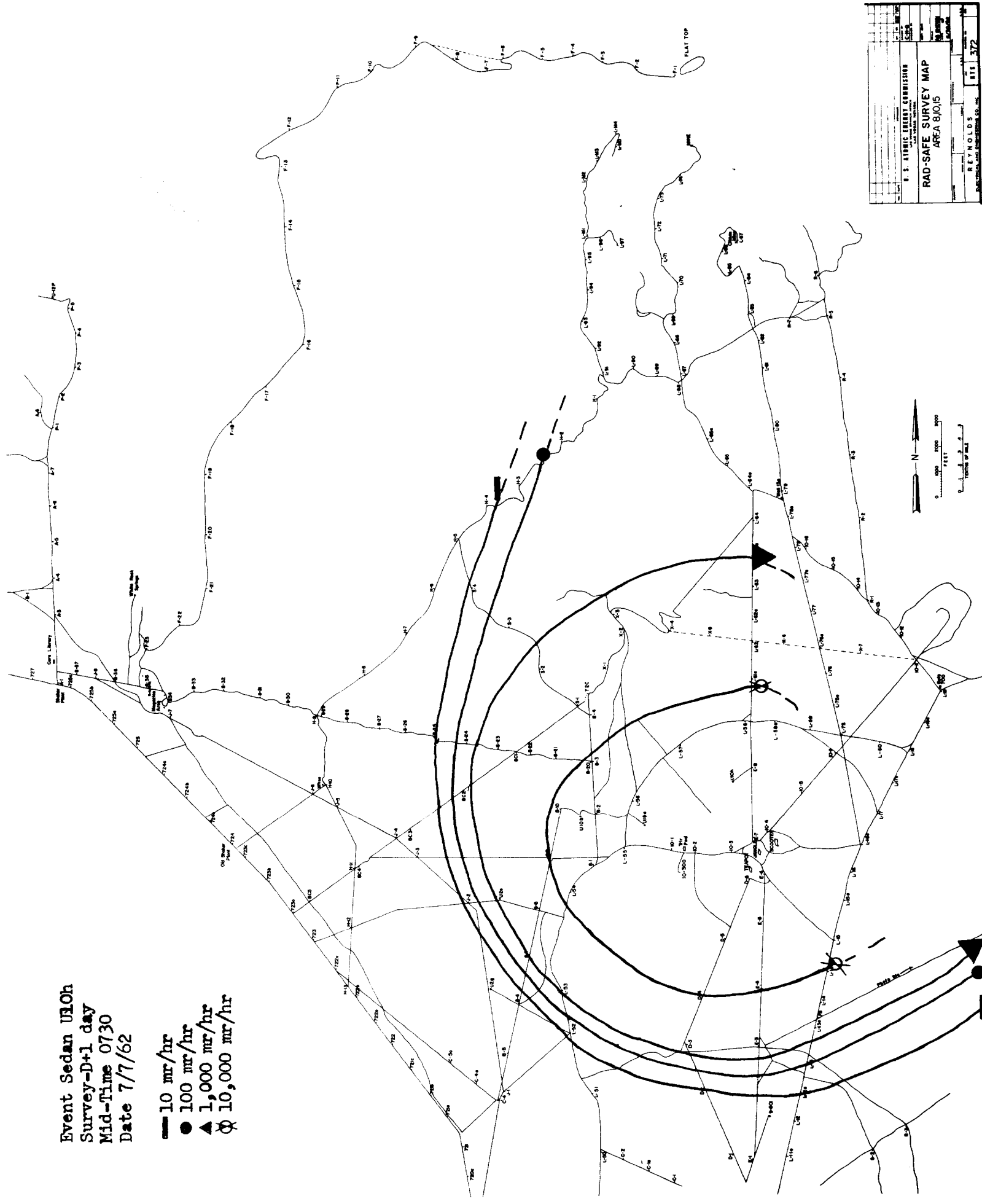


FIGURE IV

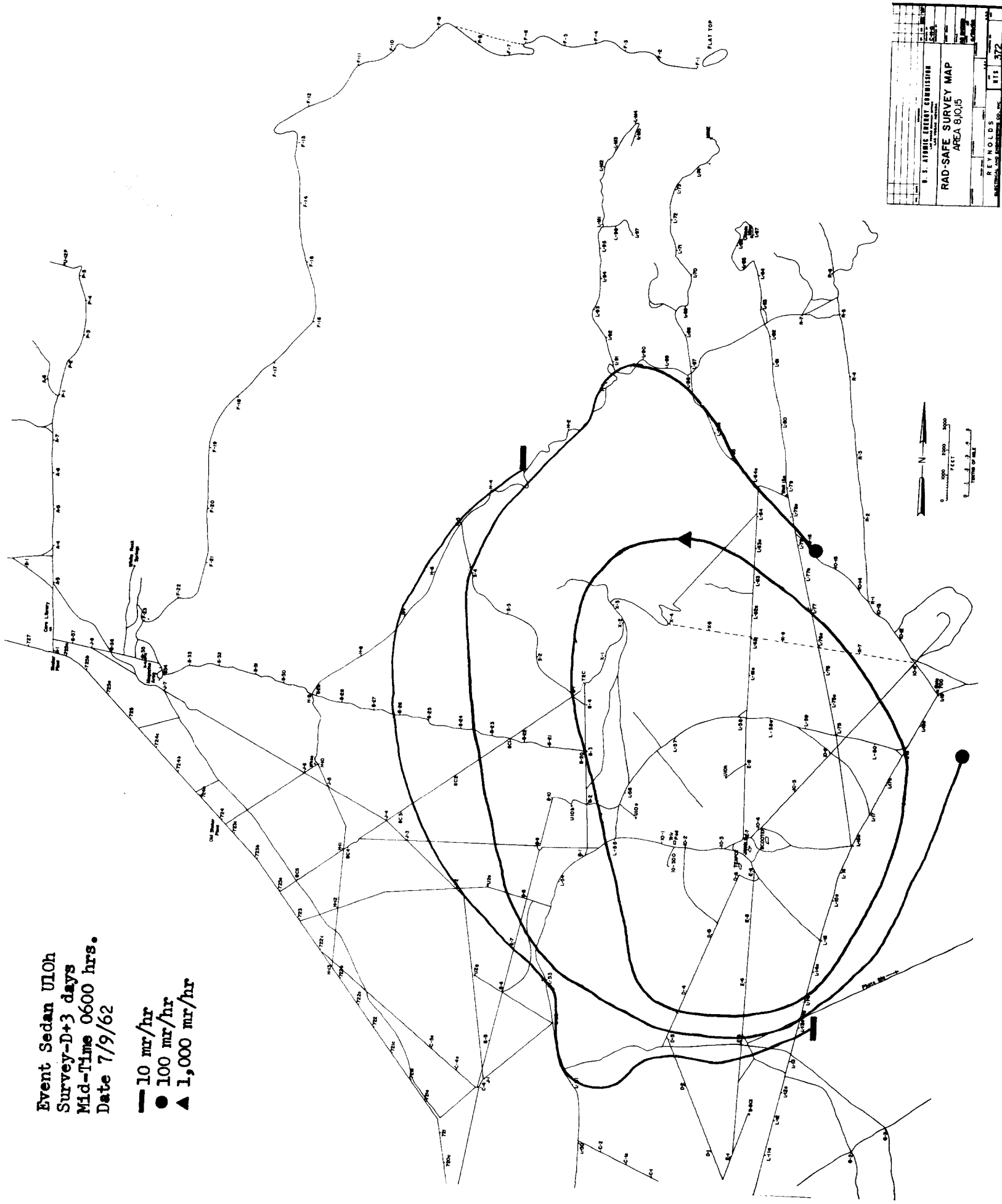


FIGURE VI

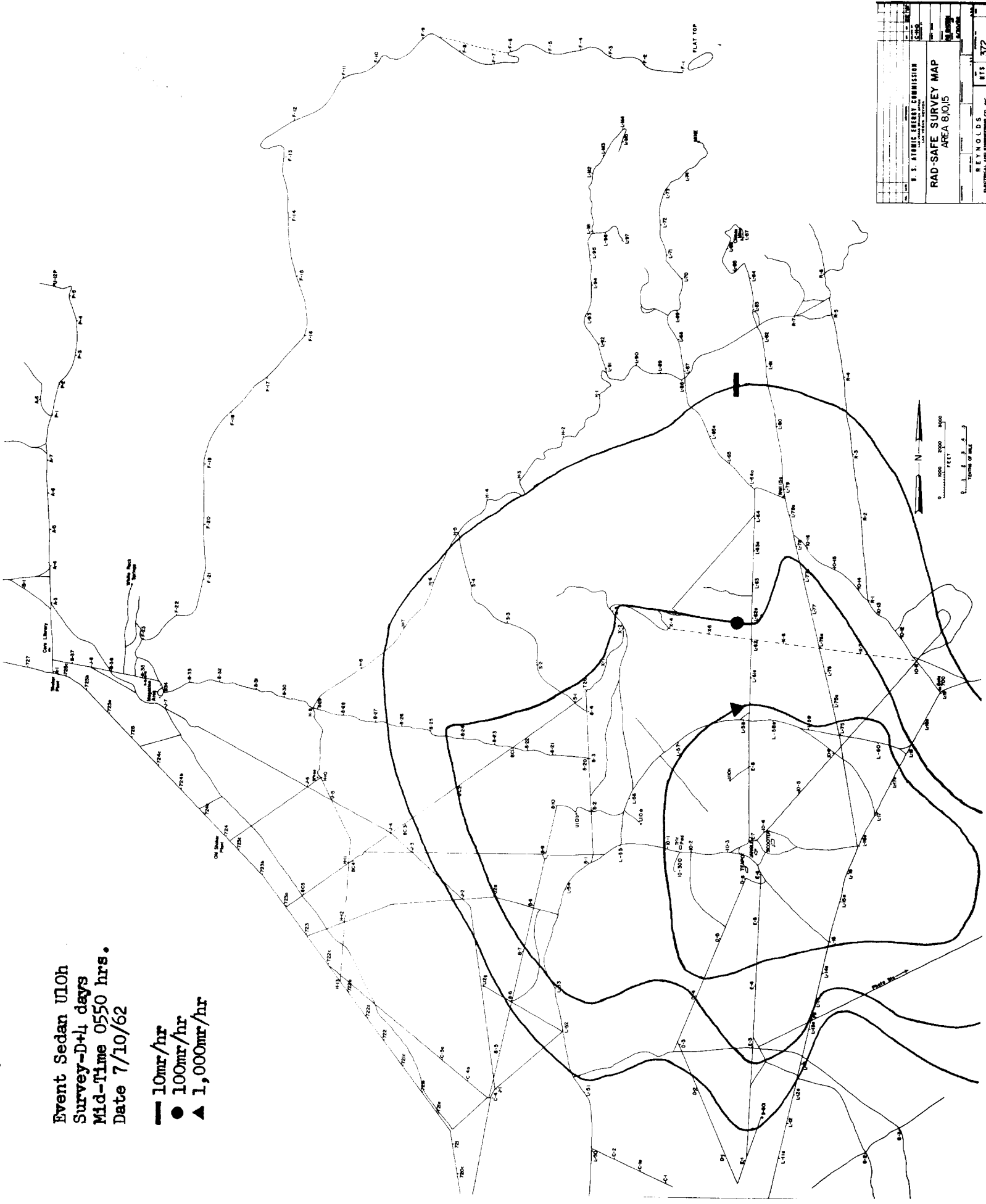


FIGURE VII

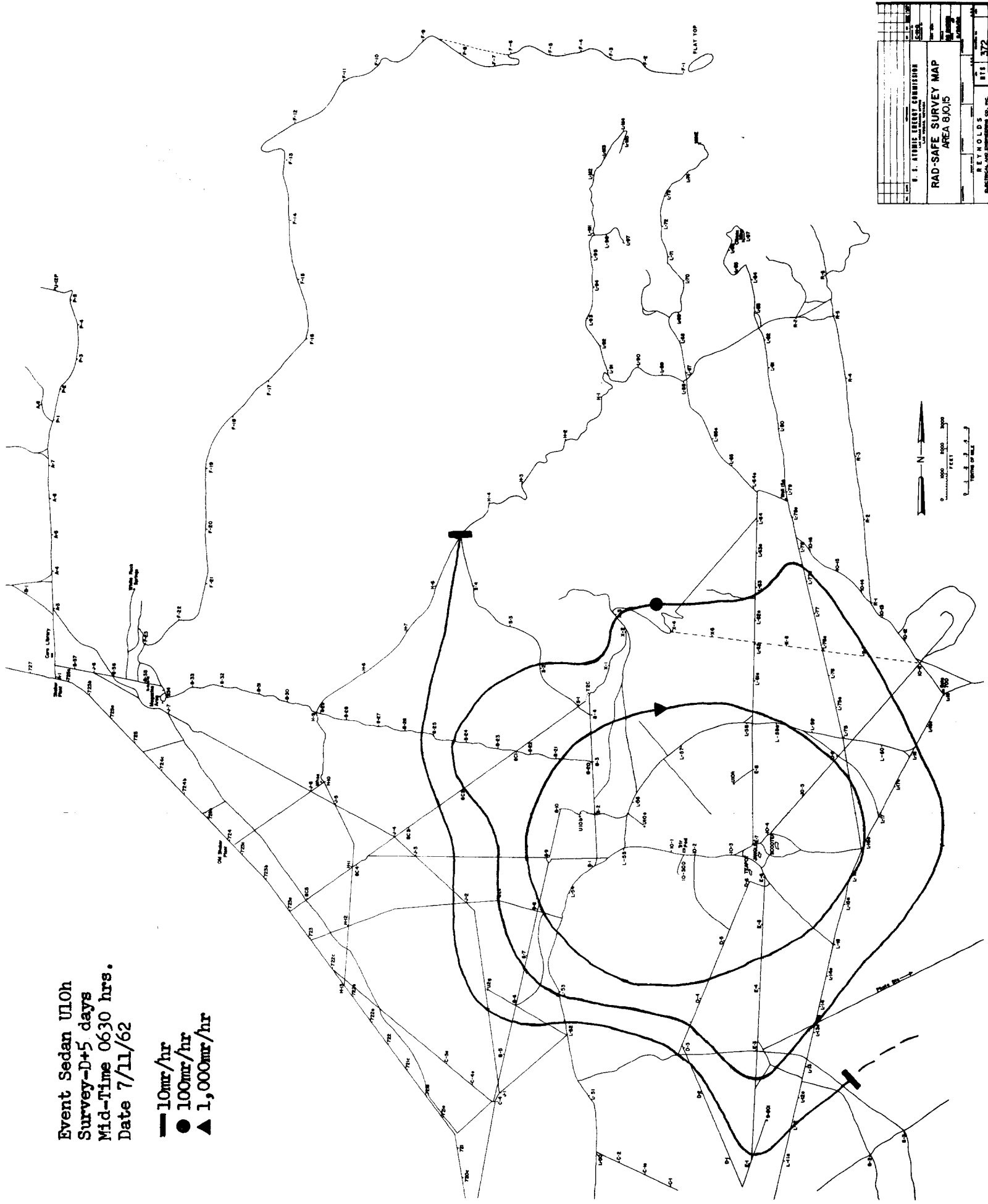


FIGURE VIII

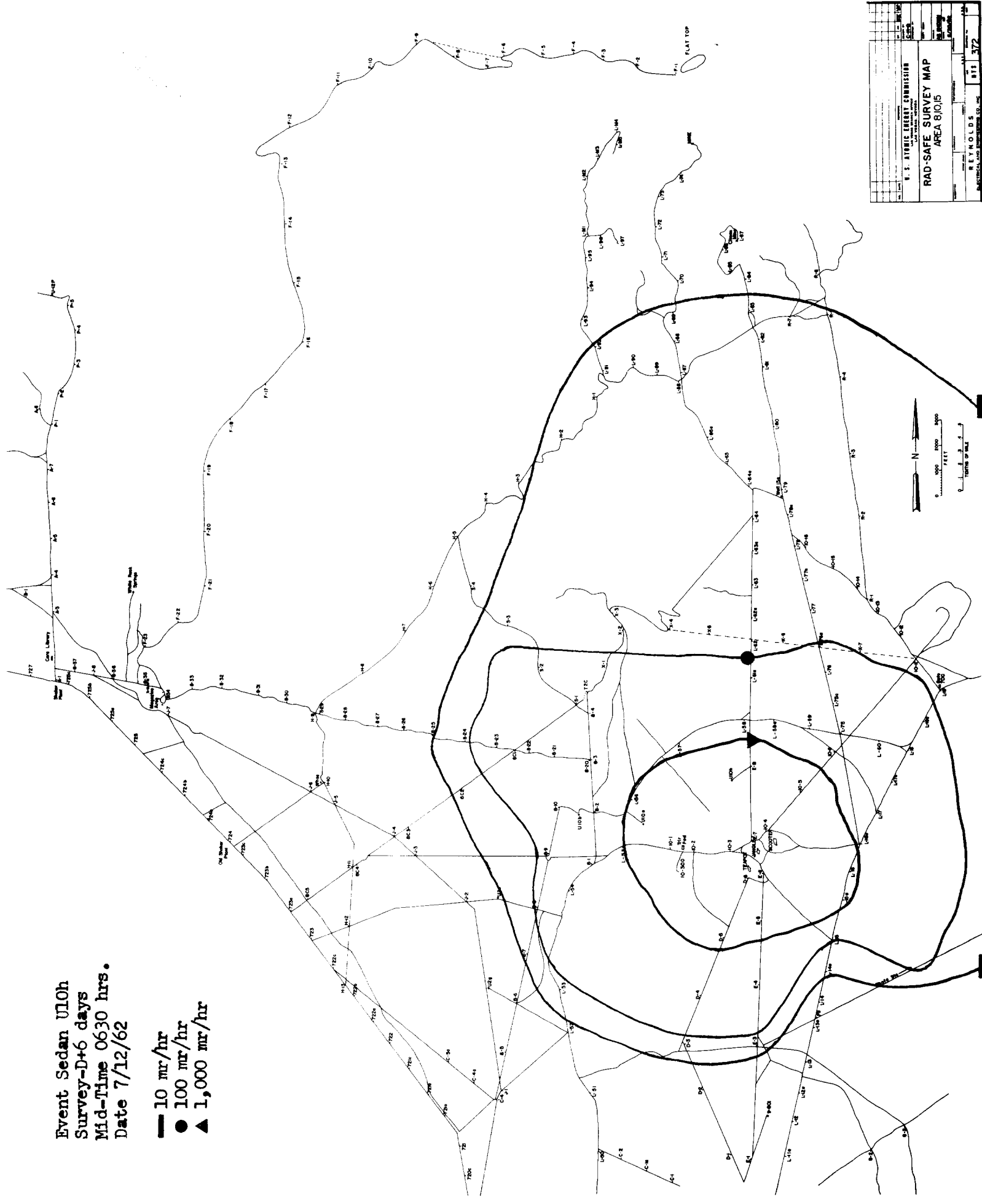


FIGURE IX

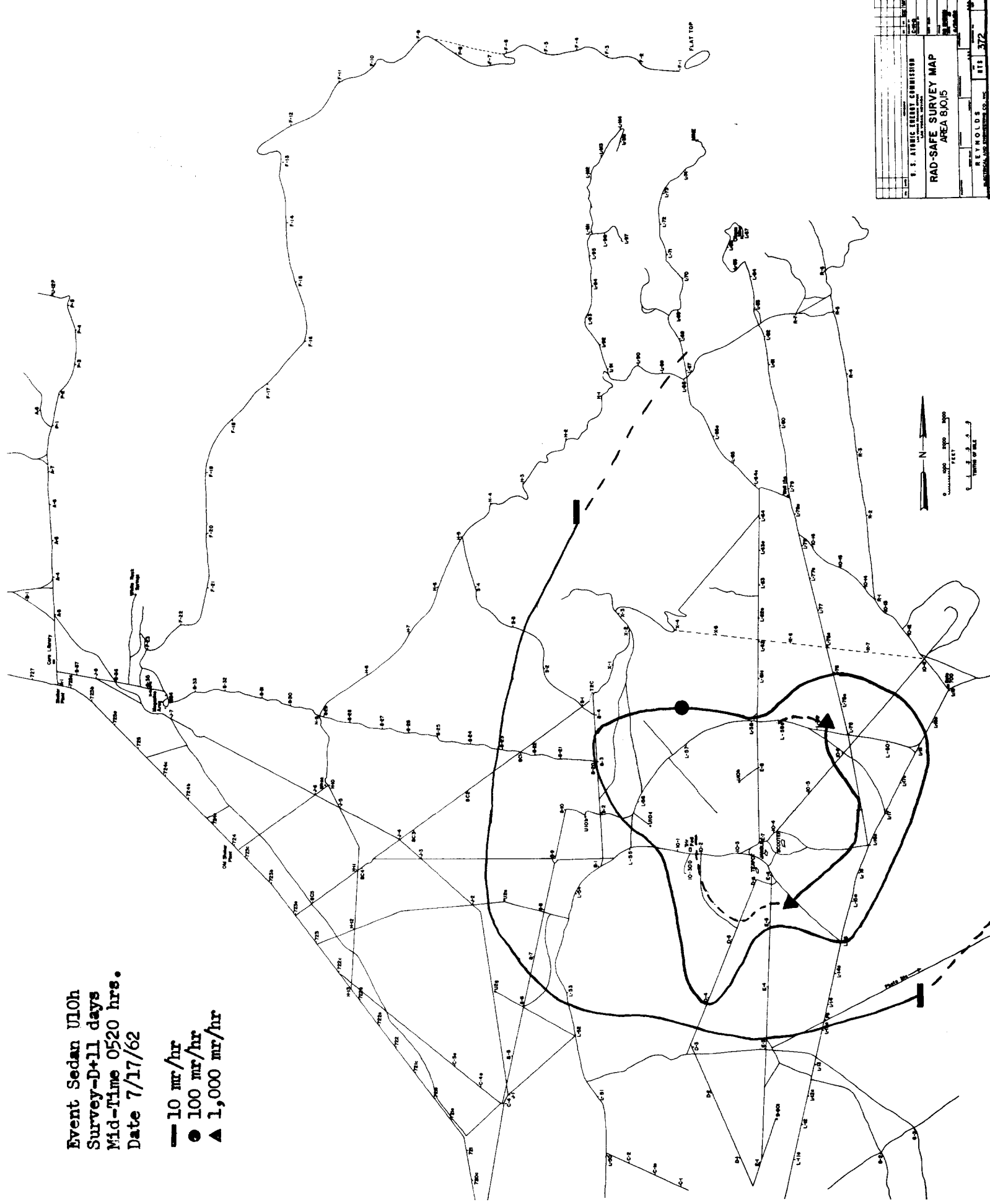


FIGURE X

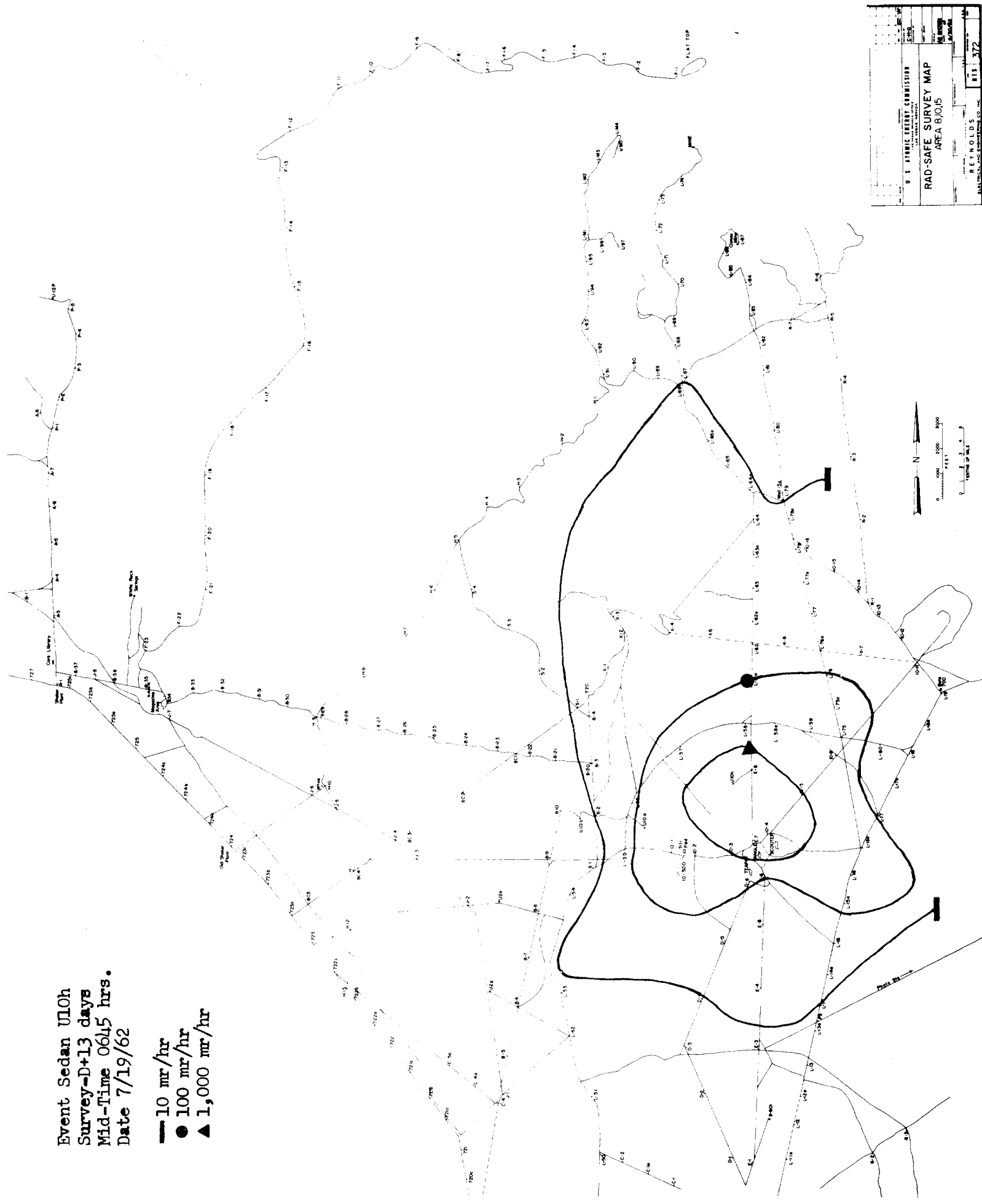


FIGURE XI

Event Sedan ULOh
 Survey-D+20 days
 Mid-Time 0600 hrs.
 Date 7/26/62

- 10 mr/hr
- 100 mr/hr
- ▲ 1,000 mr/hr

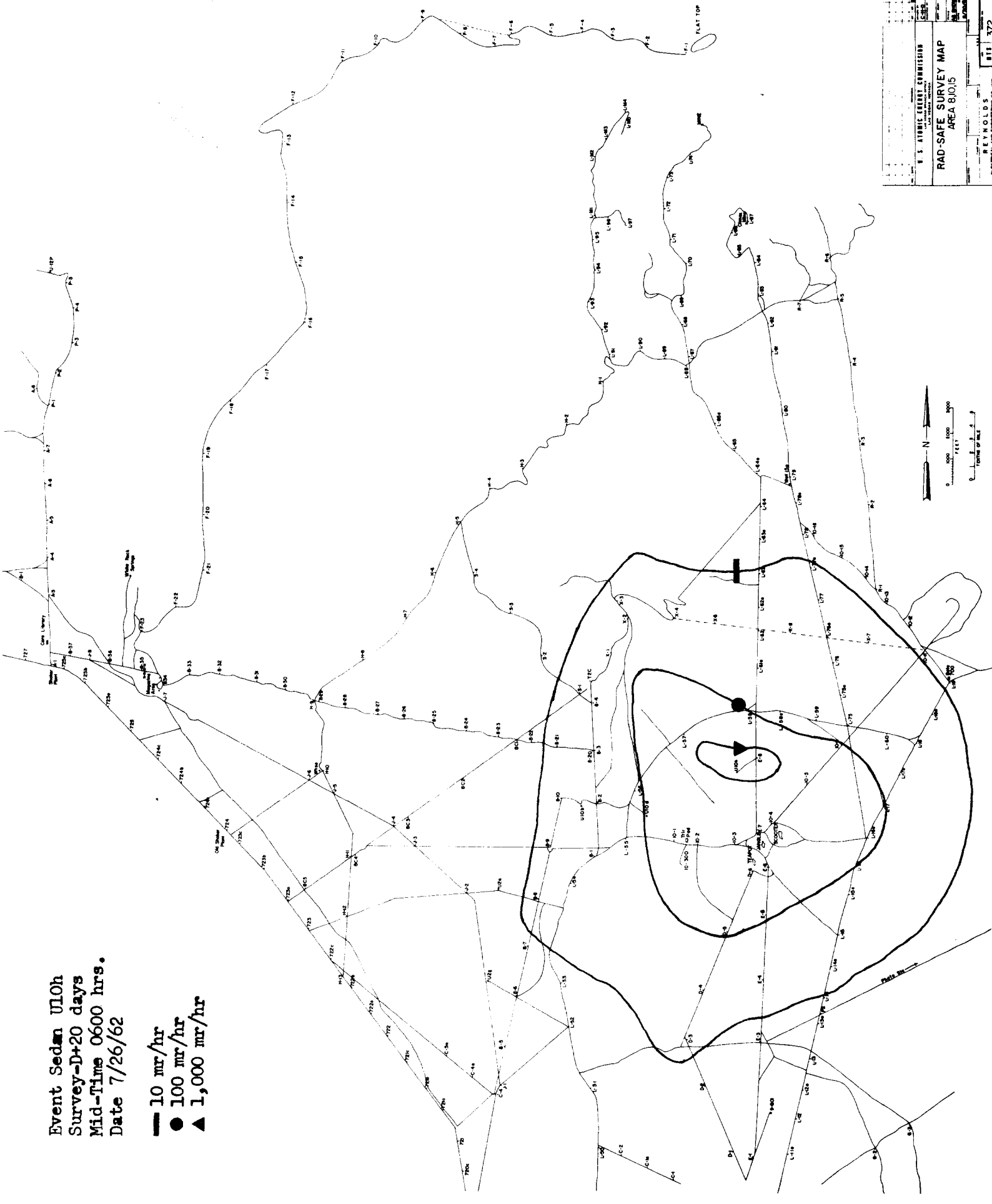


FIGURE XII

• Event Sedan ULOh
Survey-D+25 days
Mid-Time 0615 hrs.
Date 7/31/62

— 10 mr/hr
● 100 mr/hr

U.S. ATOMIC ENERGY COMMISSION
RAD-SAFE SURVEY MAP
AREA 810.15
DATE 7/31/62
BY J. N. O. L. D. S.
SCALE 1:50,000
SHEET 372

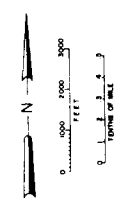
• Event Sedan ULOh
Survey-D+25 days
Mid-Time 0615 hrs.
Date 7/31/62

— 10 mr/hr
● 100 mr/hr

U.S. Atomic Energy Commission
RAD-SAFE SURVEY MAP
AREA 810.5

0 1000 2000 3000
feet
0 1 2 3 4 5
miles

RTS 372



53

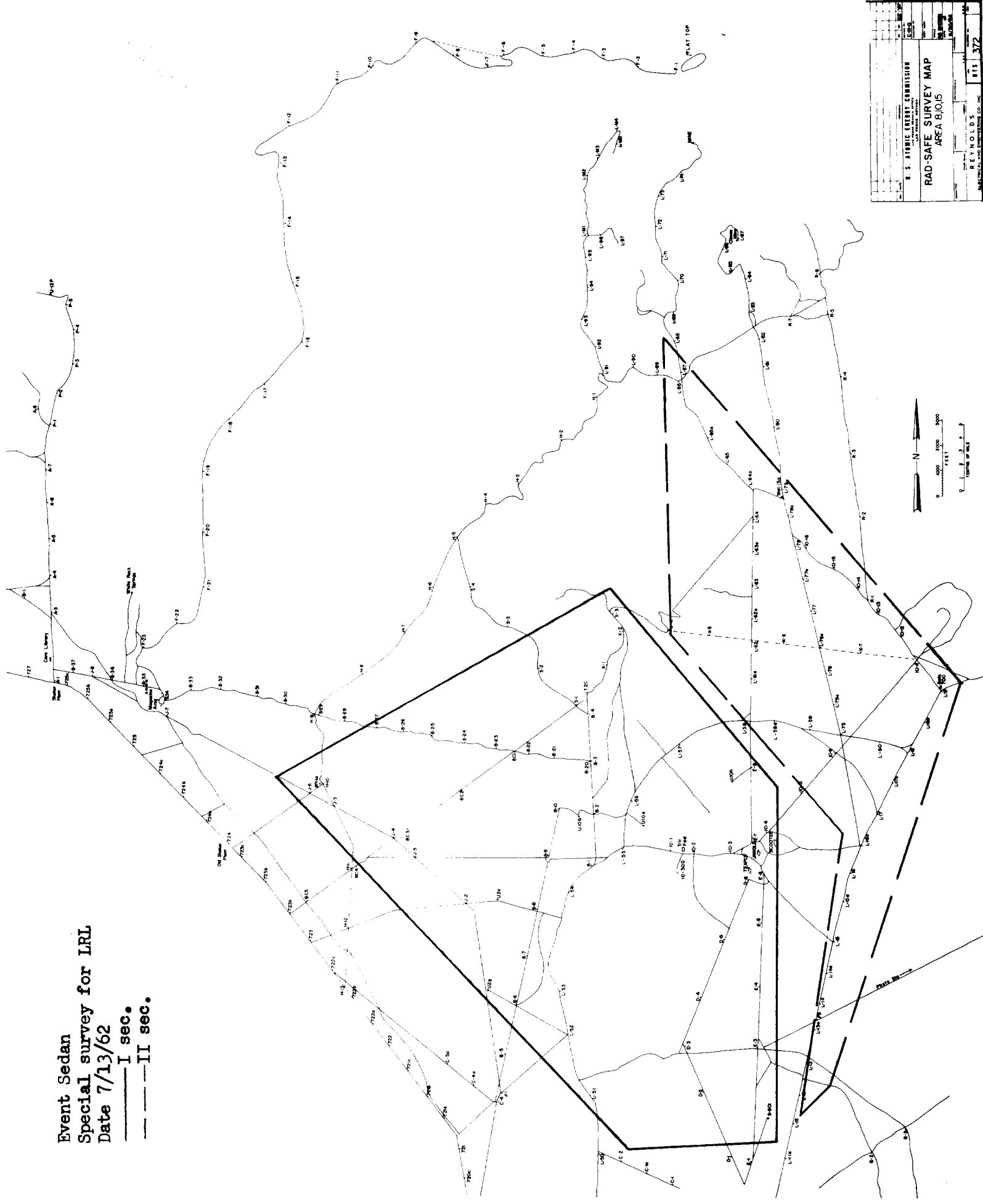
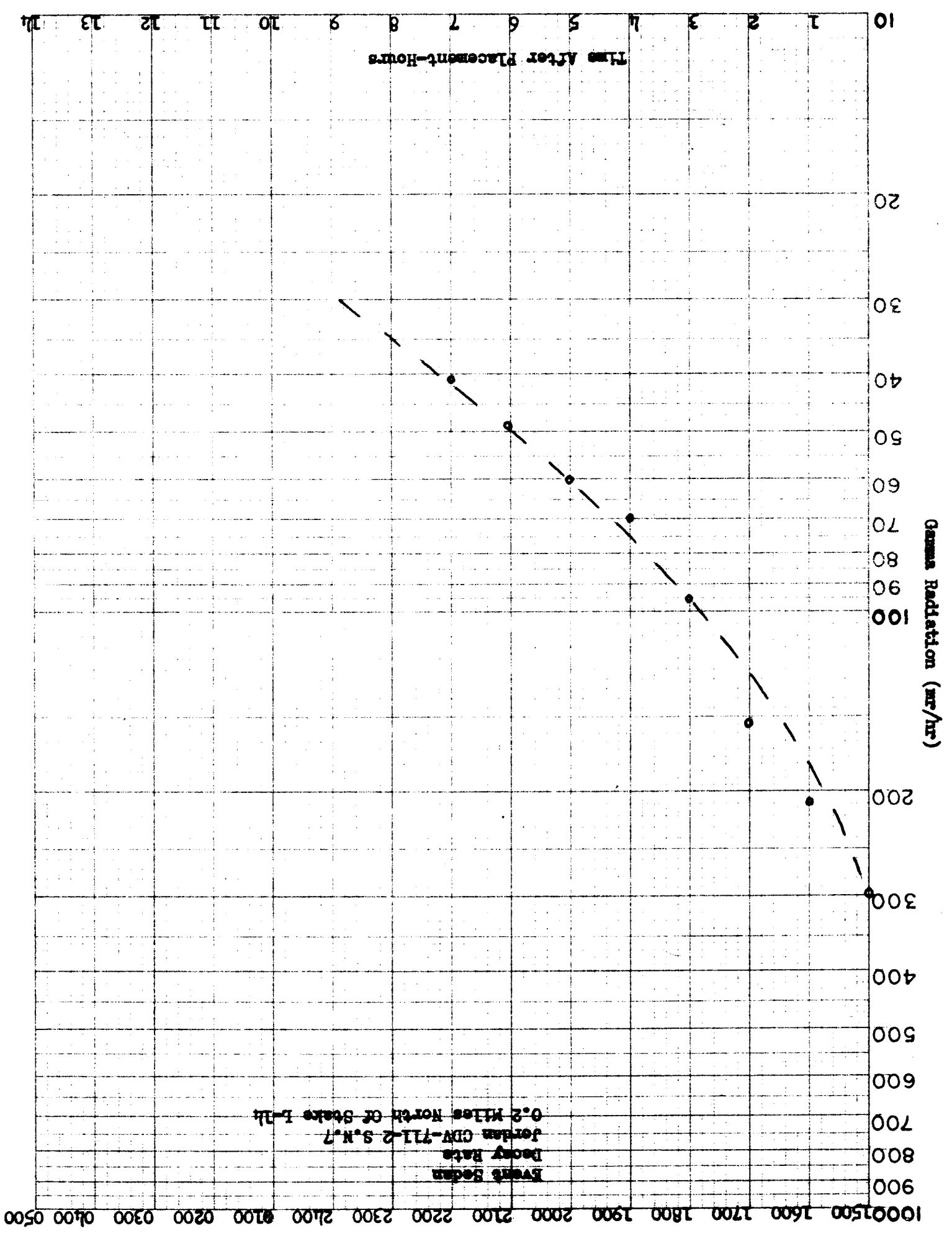
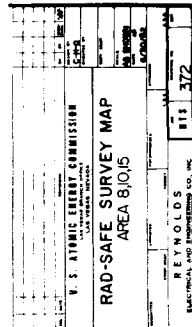


FIGURE XV

FIGURE XVI





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Event Sedan
 Path of helicopter flight.
 Date 7/7/62
 Altitude 1,000 feet.

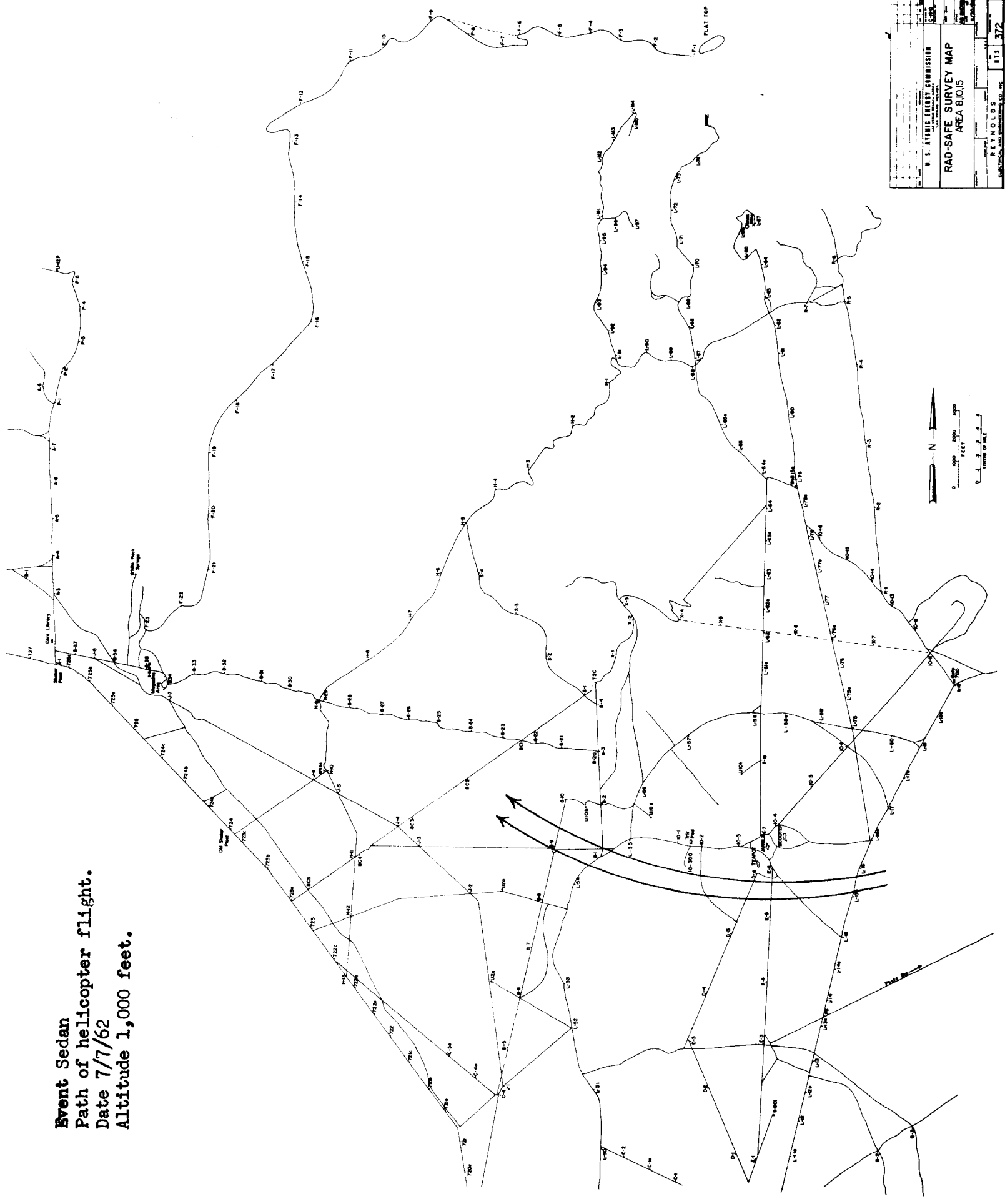


FIGURE XVIII

TECHNICAL REPORTS SCHEDULED FOR ISSUANCE
BY AGENCIES PARTICIPATING IN PROJECT SEDAN

AEC REPORTS

<u>AGENCY</u>	<u>PNE NO.</u>	<u>SUBJECT OR TITLE</u>
USPHS	200F	Off-Site Radiation Safety
USWB	201F	Analysis of Weather and Surface Radiation Data
SC	202F	Long Range Blast Propagation
REECO	203F	On-Site Rad-Safe
AEC/USBM	204F	Structural Survey of Private Mining Operations
FAA	205F	Airspace Closure
SC	211F	Close-In Air Blast From a Nuclear Event in NTS Desert Alluvium
LRL-N	212P	Scientific Photo
LRL	214P	Fallout Studies
LRL	215F	Structure Response
LRL	216P	Crater Measurements
Boeing	217P	Ejecta Studies
LRL	218P	Radioactive Pellets
USGS	219F	Hydrologic Effects, Distance Coefficients
USGS	221P	Infiltration Rates Pre and Post Shot
UCLA	224P	Influences of a Cratering Device on Close-In Populations of Lizards
UCLA	225P Pt. I and II	Fallout Characteristics

TECHNICAL REPORTS SCHEDULED FOR ISSUANCE
BY AGENCIES PARTICIPATING IN PROJECT SEDAN

<u>AGENCY</u>	<u>PNE NO.</u>	<u>SUBJECT OR TITLE</u>
BYU	226P	Close-In Effects of a Subsurface Nuclear Detonation on Small Mammals and Selected Invertabrates
UCLA	228P	Ecological Effects
LRL	231F	Rad-Chem Analysis
LRL	232P	Yield Measurements
EGG	233P	Timing and Firing
WES	234P	Stability of Cratered Slopes
LRL	235F	Seismic Velocity Studies

DOD REPORTS

<u>AGENCY</u>	<u>PNE NO.</u>	<u>SUBJECT OR TITLE</u>
USC-GS	213P	"Seismic Effects From a High Yield Nuclear Cratering Experiment in Desert Alluvium"
NRDL	229P	"Some Radiochemical and Physical Measurements of Debris from an Underground Nuclear Explosion"
NRDL	230P	Naval Aerial Photographic Analysis